PRINTING EQUIPMENT ENGINEER

MARCH • 1935

A TECHNICAL PUBLICATION FOR MECHANICAL EXECUTIVES RESPONSIBLE FOR PRINTING PRODUCTION, EQUIPMENT AND SUPPLIES IN THE COMMERCIAL, MAGAZINE, PRIVATE PLANT AND DAILY NEWSPAPER FIELDS

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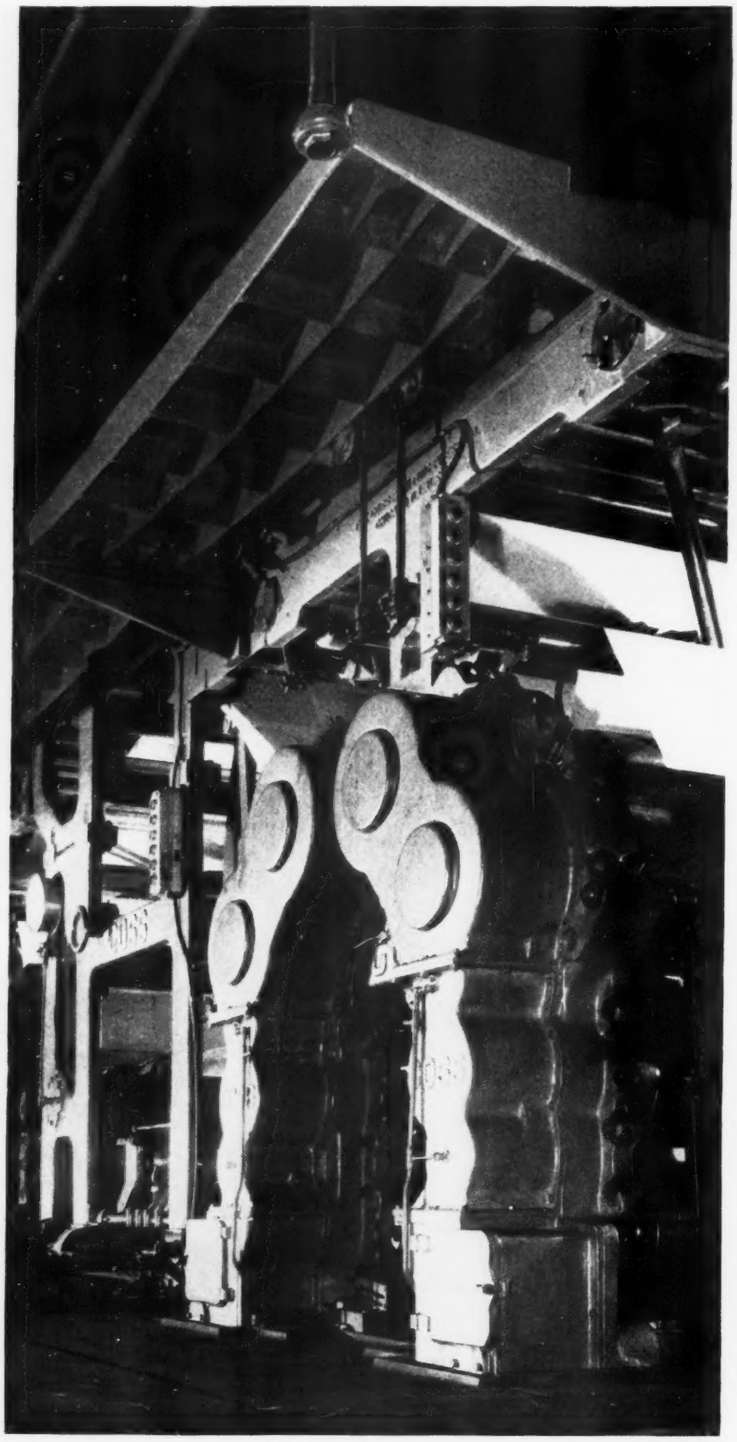

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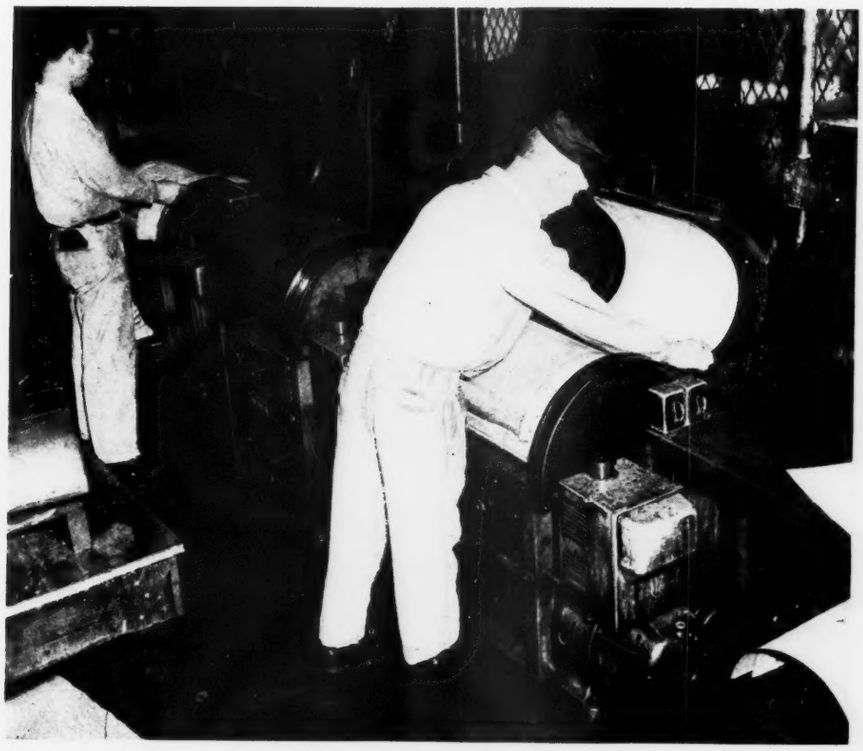

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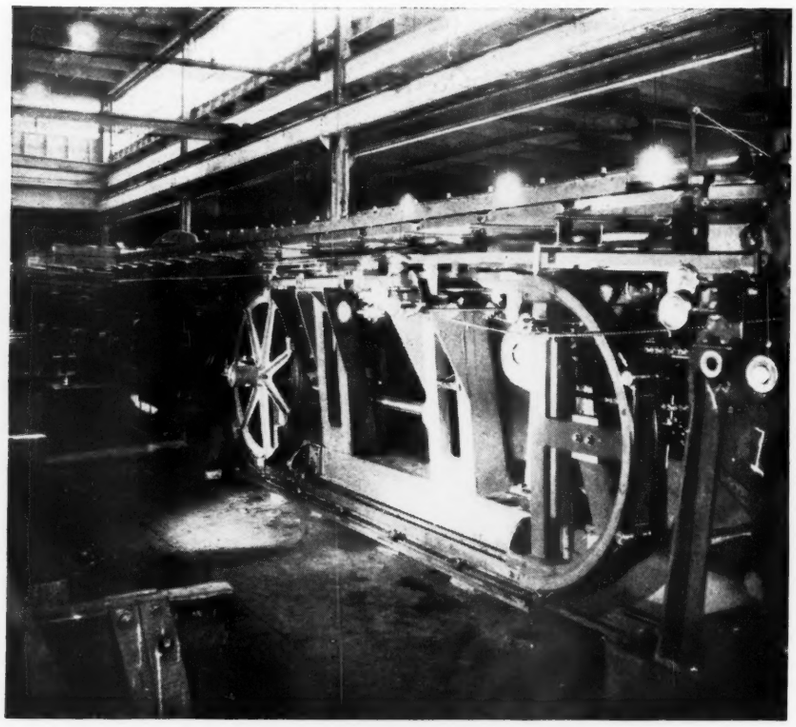

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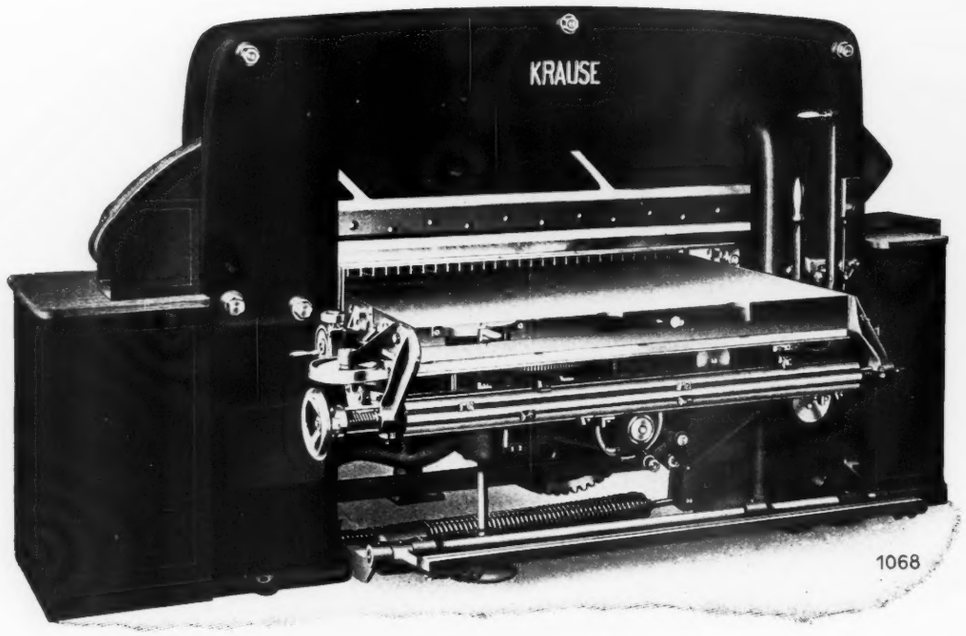

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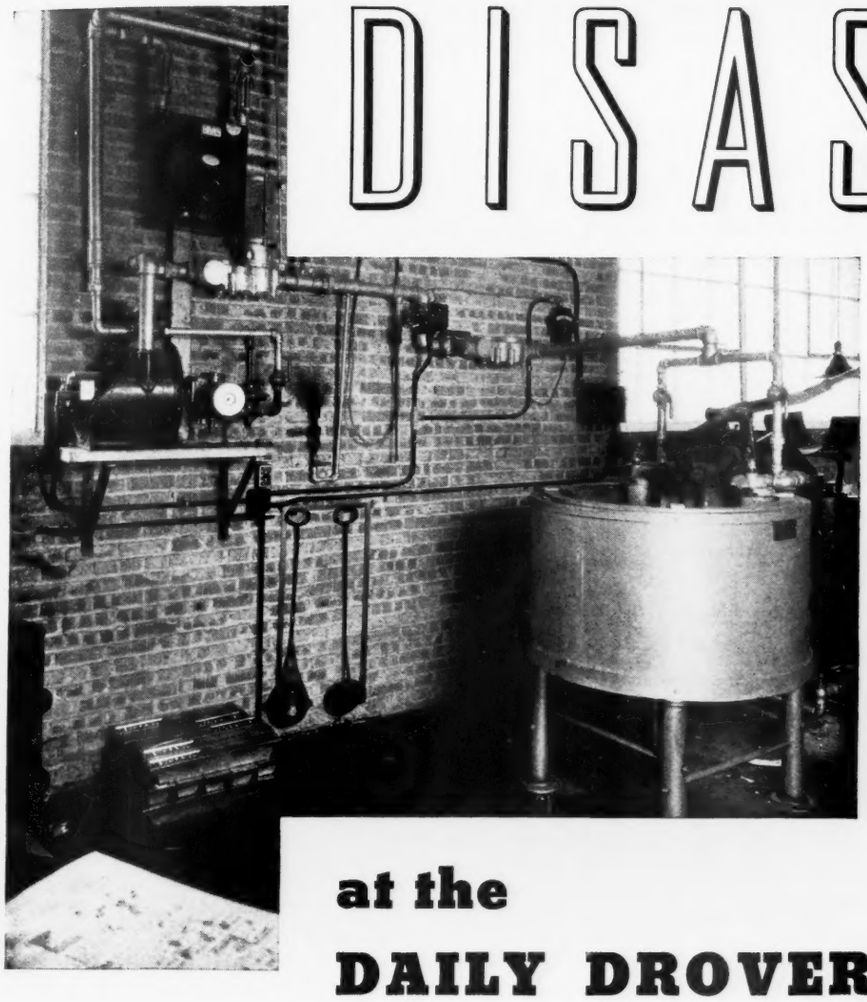

becomes an ASSET ★

at the DAILY DROVERS JOURNAL

REDUCED TO ASHES in the week-end inferno of May 19th and 20th, this great old paper, as vital a part of Chicago stock yards as the pens and slaughter houses, was among the first to rear a new model plant out of the embers of the old. ☆ Here was an example of modernizing from the ground up. Construction, layout and equipment are the last word in publishing . . . Hence, Kemp Immersion Melting with GAS . . . Hence faster melting, faster stereotyping, lower cost. ☆ As you well know, Kemp maintains a standing offer to cut your stereo melting costs 40 percent *or more*. Some day you'll have Kemp equipment and put this *wasted money* in the safe, where it belongs. Now is the best time to look into it. . . . The sooner you get it, the more you will save. Write Kemp *today*. Don't wait for a holocaust. You may never have one. The C. M. Kemp Manufacturing Co., 405 E. Oliver St., Baltimore, Md.

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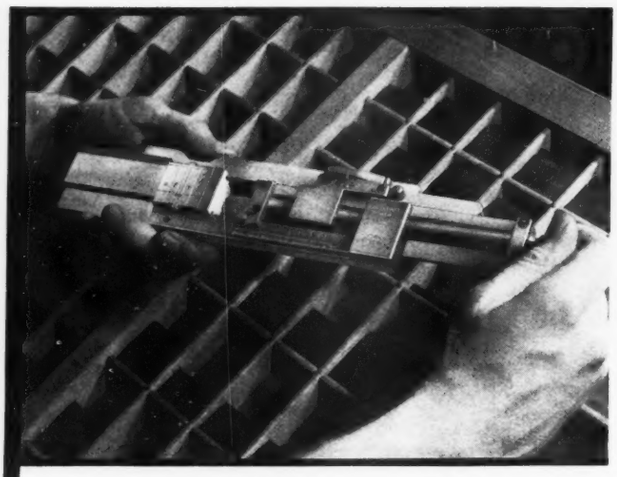

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Rule Dies

How To Make and Handle for Cutouts

By Robert F. Salade

For all kinds of paper, cardboard, paper-board, celluloid, sheet rubber and many other types of sheet material suitable for making cutouts, single or multiple steel rule cutting dies, locked up in a chase (like a form of type), can be worked either on a regular platen printing press with inking rollers removed, or on a platen cutting and creasing press. In either case, the platen of the press to be used should be fitted with a removable steel platen plate about 0.035 in. thick. This steel platen plate acts as a smooth, hard counter in contact with the edges of the cutting die each time an impression is taken on the press. The platen of the press can be adjusted to provide for the thickness of the material to be cut; in fact, with one proper setting of the platen, any thickness of material can be cut out, as required, ranging from sheets of paper stock up to paper-board and other sheet material 0.070 in. thick, and even greater when the cutting die has been constructed to cut soft types of extra-thick material.

"Gang-forms" of duplicate cutting dies can be worked on large, heavy platen presses and also on flat-bed cylinder cutting and creasing presses. When die-cutting is to be produced on a flat-bed cylinder press, the impression cylinder of the press is to be fitted with a special curved steel jacket which is to serve as a counter when in contact with the edges of the steel rule cutting dies. As a general rule, only sheets of paper stock, cardboard and flexible sheets of paper-board are die-cut on a cylinder press.

How Steel Rule Cutting Dies Are Made

To provide for the making of all styles and shapes of cutting dies, steel cutting rule is manufactured by a number of companies in various body thicknesses, tempers and heights. The standard body thicknesses are: 1, 2, 3, 4, 6, 8, 10 and 12 points (type point system). All these are made in two types of cutting face, viz.: Center face and side face. The usual four standard tempers are: 1, extra hard. 2, hard. 3, soft. 4, dead soft. The two most popular heights of all makes of steel cutting rule are: 0.923 in. and 0.937 in. Other heights are made to order.

The 2-point body of steel cutting rule, with center face, and in the 0.923 in. height, is used to the largest extent in dies for cutting paper, thin paper-board and other thin, soft material. The 0.937 in. height of 2-point rule, center face, is used in dies for cutting cardboard, chip-board, folding box-board and other soft materials up to 0.040 in. thick. The 3, 4, 6, 8, 10 and 12 point body thicknesses of rule, both center face and side face styles, usually of the 0.937 in. height, are used in dies made to cut various hard and thick materials. For example, a die made with 8-point body rule is strong enough to cut out shapes from heavy cloth, celluloid, rubber, cork, thin wood, corrugated board, thin sheets of tin and copper, asbestos and leather.

Cutting dies made with center face rule will not cut certain thick materials as cleanly and sharply as dies having rules with side face. Nevertheless, dies with center face rules are quite suitable for cutting numerous kinds of material. Dies built with 8, 10 or 12-point body rule, side face, are excellent for cutting out either straight-line or rounded odd shapes from thick paper-board like that used for large illus-

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Associate Member
National Printing Equipment
Association, Inc.

MARCH 1935
VOLUME 49 Number 6

Printing EQUIPMENT Engineer

Trade-Mark Registered

Published by Don Will
Edited by Mac Sinclair

A Technical Publication for Mechanical Executives Responsible for Printing Production, Equipment and Supplies in the Commercial, Magazine, Private Plant and Daily Newspaper Fields.

Established 1910

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PUBLISHED MONTHLY AT 1370 ONTARIO STREET, CLEVELAND, OHIO

EASTERN REPRESENTATIVE: RUSSELL BIRCHFIELD, 509 FIFTH AVE., NEW YORK, N. Y. PHONE: VANDERBILT 3-5191.

WESTERN REPRESENTATIVE: H. D. AYLSWORTH, 121 NORTH CLARK ST., CHICAGO, ILL. PHONE: STATE 3800.

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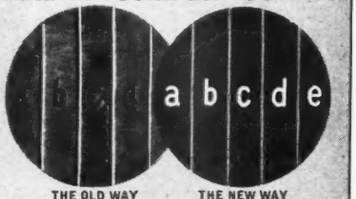

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Deep Etch

And "Indestructible" Press Plate

By Adam Henry Reiser

Many interesting movements may be observed in the graphic arts these days. There is the increasing popularity and utility of rotogravure; the many partly successful attempts of the letterpress printer to simulate offset printing; two-tone ink printing; newspaper printing in color; three and four-color processes; multi-color presses and the three-in-one shot color separation camera among many others. But to a lithographer, and by the same token to the letterpress printer, whether or not he intends going offset, the writer believes the topic compelling paramount attention is undoubtedly deep-etch. For the degree of invasion of the printing field by lithography rests with and will be in the main determined by the extent of application of the deep-etch principle by the industry.

Support of this assertion will be found in the 1935 Catalog Number of *Printing* Equipment *Engineer*. That issue carries an article on a multi-color offset press by the well-known authority, Frank O. Sullivan. The projected press portrayed is to have a speed of 12,500 impressions per hour. Press-plates for use on this press can be nothing short of an intaglio or deep-etch plate, in the writer's opinion, to function successfully at such high speeds for any length of run on high quality work.

DEEP-ETCH DEFINED

Just what is meant by Deep-Etch? In offset lithography, a deep-etch or intaglio plate is one in which the image or work is sunk below the surface of the plate. This is accomplished at present in one of two ways. A European inventor, electro-deposits layers of metal around the work, thus obtaining raised, non-printing areas. This method calls for a job executed in the ordinary planographic manner. On completion, the plate is treated as though plated, in effect being the same. No evidence of its introduction in America is on record as yet.

Continued on next page

742

New Readers

Printing Equipment Engineer *carries universal appeal to mechanical executives in both commercial and newspaper printing plants because commercial plant executives have told us they like to know what is going on in the newspaper branch of the industry and conversely, the newspaper executive is interested in the production side of commercial printing.*

This month Printing Equipment Engineer *has added to its list the names of 742 printing executives in commercial plants having a rating of $20,000 or more.*

To YOU, our new mechanical and production executive readers, we extend a cordial greeting.

We want you to feel that Printing Equipment Engineer *is YOUR magazine. In it you may express your views on subjects pertaining to mechanical and production problems.*

Your problems are similar to those of others, because our readers are engaged in similar endeavors; the only difference is that the problems may be of relative importance because of the size of the plant. By the same token, just remember there are more small and medium-size plants than large ones, so you are in good company and Printing Equipment Engineer *is the common meeting ground where mechanical executives may discuss technical subjects.*

Please avail yourself of the Editor's invitation when you have something to pass on to other executives.

Detroit It Is

Manager Walter E. Wines, of the A. N. P. A. Mechanical Department states that the Mechanical Conference will be held in Detroit, three days, May 27, 28 and 29.

By far the most common method is that of sinking the work into the plate through the action of acid. In either case, friction, which is so harmful to planographic plates in offset printing, will vent its fury on the raised surfaces, leaving the work that is sunk below the surface, comparatively untouched. This is what

Adam Henry Reiser

who will contribute to Printing Equipment Engineer *at intervals, needs no introduction to the lithographing fraternity. To our letterpress mechanical executive readers who are taking an interest in the swift developments of offset it is well to mention some of Mr. Reiser's accomplishments.*

He has been a practical lithographic transferrer and photo-composing machine operator for more than twenty years, seven of which were spent in an executive capacity. During the World War he served as a lithographer in the Engineer Corps. Mr. Reiser, besides being a lithographic consultant and lecturer is Associate Editor of the Lithographers' Journal *and holds a license to teach lithography for life which was issued by the New York State Department of Education. He is secretary of the Educational Committee in getting trade information to members of the trade, supervises apprentice training and is Educational Director of the A. L. of A. Process School.*

gives rise to the expression, "indestructible plate" when referring to deep-etch plate. A brief description of the prevalent methods of making these deep-etch plates will better enable us to understand the subject.

ETCHING METHODS IN COMMON USE

Two means of approach present themselves in the etching method. The image may be produced photographically or it may be gotten by the old hand methods, either drawn or transferred. In photographic procedure, a positive is used to shield from the light hardening action of artificial light, a light-sensitive coating, whirled onto the zinc or aluminum plate. Brochures are in print describing the use of glue, glue-albumin, gum arabic, or synthetic albumin, any one of which may be combined with ammonium dichromate to produce this light sensitive coating. This positive may be in the form of a photographic image on glass, paper, or film, a drawing on tracing cloth or some other transparent medium, or it may be an impression pulled to cellophane, celluloid, glasene or in some remote cases, impressions on glass.

But all jobs fail to lend themselves economically, to this photographic method. Therefore, considerable of the work is still either hand-drawn or transferred. In deep-etching, some have used the same materials for coating these hand jobs, washing the ink out from under the coating, exposing to light and then deep-etching in the regular manner. Others have coated a clean plate, applied an adhesive and have then transferred impressions pulled on a specially prepared paper over onto the coated plate, thus causing the paper to stick. Light is then shot through the paper, hardening the colloid coating on the plate. Still others transfer the regular transfer paper impressions to the colloid-coated plate to which a water-resistant coating has been applied.

Still another firm uses an English transferring machine to pull transfer impressions from an original to the rubber blanket and then to the coated plate. In each instance of this hand work, the plate is exposed after the impression has been gotten to the coating or plate in some way, the ink is removed, either before exposure or after, depending upon the method used, and then developed if the coating is below the ink. Etching is then carried on. Acids used in the actual etching vary as to the operator. Iron perchloride in combination with other acids is still looked upon with favor by many on both aluminum and zinc.

NEW HAND WORK METHOD

The latest development on deep-etching hand work, whether line drawing or transfers, crayon or stipple, eliminates the customary whirling, printing-down machinery or arc lights, necessary to colloid coatings. A wide departure from present methods is used, which involves none of the weather-affected colloid coating. This method is said to mark the first time that any hand-drawn art work has been deep-etched on the drawing directly. Exact reproduction of the original is thus assured, no loss occurring through photography.

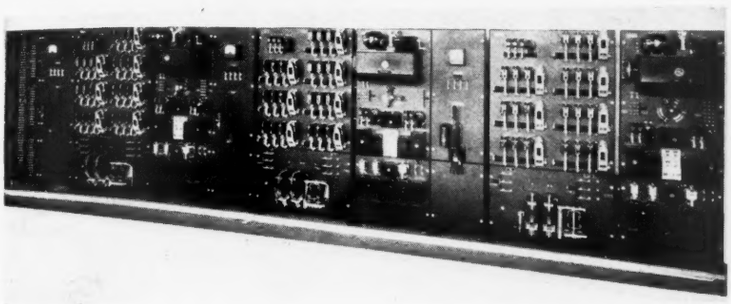
As to the metals employed in any of these processes, no limits are imposed. Both zinc and aluminum can now be deep-etched. Where aluminum, even up to quite recently was thought difficult to work, we find shops strongly favoring the whiter metal.

The writer has attempted to sketch an outline of existing methods of deep-etch after stressing the need for it. A more nearly indestructible plate is produced by deep-etch than by planographic means. Such a deep-etch plate seems necessary to the further advancement of lithography. In one plant such a plate has resulted in estimates being based on a natural plate-life of a million sheets, on both halftone work as well as line work. That makes it quite a factor, don't you think? The letterpress printer, engaged in book work production and with an eye to future offset installation, would do well to consider this phase.

Ayer Contest

All daily English language newspapers in the United States have been invited to participate in the fifth annual Exhibition of Newspaper Typography to be held in the Ayer Galleries in Philadelphia under the auspices of N. W. Ayer & Son, Inc. Papers wishing to compete have been requested to submit issues of March 5.

As in previous exhibitions the newspaper will be judged for excellence in typography, make-up and press work. Certificates of merit will be awarded the first three papers in each of three circulation divisions—papers up to 10,000 circulation, papers of 10,000 to 50,000, and papers which have circulations of 50,000 or more.



Battery of 200 h.p. full automatic a.c. control panels for controlling three printing press drives.

A.C. vs. D.C.

Drives for Newspaper Printing Presses

By H. F. BLANKENBILLER*

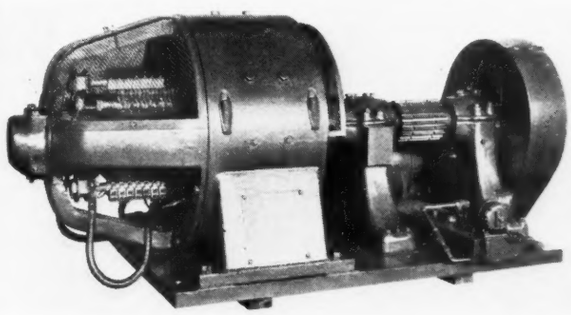
DURING the past few years there has been considerable discussion concerning the relative merits of alternating and direct current power and of alternating and direct current drives for newspaper presses. To reach a conclusion we must consider, honestly and fairly, all the facts. To do this, it is necessary to have had experience with both types of equipment.

The first point to consider is the availability of a.c. and d.c. power supply. It is an established fact that 95% to 98% of the power generated today is generated as a.c. power and that the tendency is toward the elimination of d.c. due to the higher cost of transmission and distribution. These higher costs must be borne by the consumer (the newspaper). Let me state now that where d.c. power is available at a comparable rate with a.c., with assurance of continued availability, d.c. press drives should be used. However, I know of one specific case where d.c. press drives were installed and less than a year after installation the d.c. power rate was increased 10%. If this consumer now wishes to take advantage of the lower a.c. rate he must replace the d.c. drives with a.c. drives as he would gain no advantage by installing conversion equipment. The costs of power conversion must be paid, either to the power company, or in the cost, installation and operation of the converter sub-station in your own plant. You will appreciate that any well established manufacturer of press drives offers both a.c. and d.c. equipment and that from a sales standpoint it is immaterial whether a.c. or d.c. equipment is used. Every newspaper publisher, business manager, or mechanical superintendent, is interested in operating his plant as economically as he can, and conscientious electrical manufacturers consider it their duty, as suppliers of electrical equipment to the newspaper industry, not to burden him with unnecessary equipment.

Now that we have established the d.c. drive as the one to use where a continued source of d.c. power is available at a rate comparable with a.c., let us compare the a.c. press drive equipment with the equivalent d.c. press drive plus the electrical apparatus necessary to produce the d.c. power with which it is to be used. This means rotary converters, motor generator sets, or other form of conversion apparatus and usually transformers and switching equipment.

The next point to consider is that of reliability and performance. Electrical manufacturers realize that this is the most vital of all to a newspaper plant and is paramount under all conditions and all considerations. Today a.c. press drives have been developed by alert and conscientious electrical manufacturers to a degree where they are comparable in every respect to the performance of d.c. drives. Threading-in speeds are maintained exactly like d.c. Acceleration and deceleration are obtained in the same time and with the same smoothness. From the standpoint of performance and reliability exactly the same guarantees are made for both a.c. and d.c. The a.c. press drives for high-speed newspaper presses are no longer an experiment. They have been tried and proved entirely successful. The most experienced individual can go into a modern metropolitan pressroom, and by observation, cannot detect any difference between a press powered by a.c. equipment and one powered by d.c. This holds for the smooth starting of the presses, the "inches" or "jogs"

*Industrial Department, General Electric Co., Schenectady, N. Y.



G. E. typical d.c. double motor drive for newspaper press. The main motor is 200 h.p., 1200 r.p.m. The starting motor is 10 h.p., 850 r.p.m.

Facing the Facts

In the accompanying article, written especially for newspaper mechanical and production executives, Mr. Blankenbiller sets forth some plain facts regarding a.c. and d.c. newspaper printing press drives. For some time a controversy has existed as to the merits of each drive. Printing EQUIPMENT Engineer *believes newspaper mechanical and production executives will be highly interested in Mr. Blankenbiller's discussion relative to the hazard of increased d.c. power rates; conversion apparatus necessary for operating d.c. equipment with a.c. power; performance and reliability of the two types of equipment, losses at low speeds with a.c. equipment, economy of operation and comparable operating speeds.*

Since most newspaper mechanical and production executives are not electrical engineers and are interested only in the production phase of printing, our readers may accept the writer's arguments as authoritative as they are based on exhaustive tests made under laboratory supervision as well as practical tests made in newspaper pressrooms.—EDITOR.

This is an illustration of a group of 200 h.p. full automatic d.c. control panels for five 2-motor newspaper printing press drives.

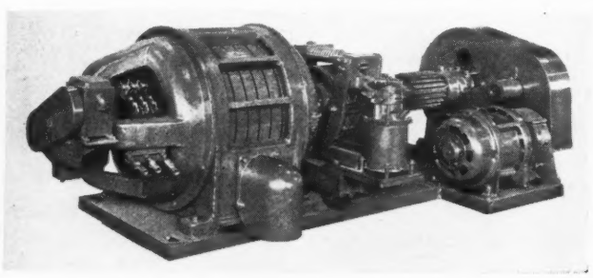
necessary for plating up, maintaining slow speeds for roll changes, acceleration and deceleration, red button stops, smoothness in web travel through the press, vibration and any other function that is pertinent to the production of the best newspaper. To eliminate all possible doubt, General Electric engineers have gone a step farther than mere visual inspection. Tests of all character have been made on presses driven by a.c. and d.c. equipment and the most delicate instruments available have been used. After a complete analysis of these tests the same guarantees are still made for a.c. equipment as d.c. We appreciate that if this important question of performance and dependability were not settled once and for all there would be no use of further discussion and consideration of a.c. equipment.

We have now established two very important facts. First, to use d.c. equipment where a reliable and economical source of d.c. power is available. Second, from a standpoint of performance and reliability both types of equipment are exactly equal. You may disagree with these statements but that does not alter the facts as none of the statements made are mere salesmen's propaganda, they are not guesses or hunches, but hard, cold facts which anyone can substantiate by taking the trouble to investigate.

Let's continue to face the facts. We are all interested in the price we have to pay for equipment. Today the price of comparable a.c. and d.c. drives is approximately the same. However, we must add to the d.c. equipment the cost of conversion apparatus and other equipment. I am not going to say anything further about this item. Those of you who have been confronted with this problem may appreciate now how much money you have saved or have needlessly spent and those who will be confronted with this problem in the future may profit by careful consideration of these facts.

Going hand in hand with the amount of new equipment and the first cost are the following items:

(1) Cost of installation. (4) Operating expense.
(2) Space requirements. (5) Insurance and taxes.
(3) Maintenance expense. (6) Interest on the investment.



G. E. typical a.c. double motor drive for newspaper press. The main induction motor illustrated is 200 h.p., 1200 r.p.m., and the threading gear motor is 15 h.p., 360 r.p.m.

Under every one of the above items there are decided savings in favor of the a.c. equipment and I promise you that if you face these items fairly and honestly you will find the savings to be appreciable sums. I appreciate that there are no two newspaper plants in this country operating under exactly the same conditions. They differ with morning and evening papers, circulation, number of editions, variation in number of pages from day to day, number of presses in the plant, use of color printing, rotogravure and magazine supplements, etc., but in spite of these variables, common sense, coupled with honest consideration and a thorough understanding of the facts will show conclusively that you will be money ahead by using the a.c. equipment. I mention honesty continually in this article for I cannot forget several instances that have happened in the past. In one case it was pointed out to an individual in a newspaper plant that to install d.c. equipment meant it would be necessary to add a competent electrical engineer or attendant to look after the conversion sub-station. The answer was, "What's one more man on the payroll? We have plenty of money." In another case it was even necessary to erect a special building to house the extra equipment. Here the answer was, "We have lots of money and we can put up a building at the back of the main plant." I cannot help but feel that a man who considers such problems in this light is certainly not honest with himself or else he has been very much misled. Most of us are employees and most of us are conscientious and want to handle our jobs as efficiently as we can for our employers and save as much money as we can for our employers. It is for these men that this article is written.

During the past few years derogatory statements have been made about a.c. equipment, some of which have been detrimental. In most cases these statements in themselves were harmless but the inference led to conclusions that were entirely erroneous. By the time these false impressions were corrected, the damage was done. Again I say, let's face the facts. Let's not accept loose statements without getting the proof. I am referring to such statements as "the a.c. drive is very inefficient" or "a certain plant reduced the speed of the presses by changing the chain sprocket. They couldn't get up to speed with the a.c. drives." You can see readily what the conclusions might be if the man who heard these statements did not find out any more about it than the person who made them.

In all honesty and sincerity, here are the facts. First, let us consider the item of efficiency or operating economy. Webster's dictionary defines efficiency as "economic productivity or the power of producing wealth." This is the interpretation that I refer to as overall efficiency or operating economy and this is the efficiency that means savings and profits to you. Too often we make the mistake in comparing the economy of a.c. and d.c. drives, of considering only the power change. This is only part of the story. To get the true operating economy we must necessarily consider the expense of both systems installed and the fixed charges on the initial investment. I definitely recommended the use of d.c. equipment earlier in this article, where d.c. could be secured at a rate comparable with a.c. There are very few such localities in this country today, and they are becoming fewer and fewer. The d.c. drive has one feature that differs from the present a.c. equipment in that the a.c. drive entails losses at low speeds that are not present in the d.c. drive. This is a fact. However, comparing the a.c. drive with the d.c. drive and its conversion apparatus it is an established fact that the a.c. drive is more economical to operate than the d.c. drive from 65% speed up to maximum. In other words, a press geared for 60,000 papers per hour could be operated more economically with an a.c. drive at all speeds down to approx-

imately 39,000 papers per hour. A press geared for 50,000 papers per hour could be operated with greater economy at all speeds down to approximately 32,500 papers per hour. This has been proved by many tests. Now let's ask ourselves a few questions. When we say inefficient at reduced speeds, what reduced speed do we mean? Also if we are going to run continuously at these very low speeds, do we want to gear for such extra high speeds? Did we appreciate that the a.c. drive was more economical to operate so far down in speed? Here again I want to point out that the tests made were on actual editions and included acceleration and deceleration for roll changes. It should be borne in mind, however, that more efficient operation can be secured by gearing somewhere near the speed you expect to run.

This brings us definitely to the second statement made: "That geared speeds were reduced because they couldn't get up to speed with a.c. drives." I happen to be familiar with certain cases where the geared speeds were reduced on presses operated with a.c. drives and in each case the press was geared initially for 55,000 and 60,000 papers per hour. In each case, there was plenty of power to operate these presses at the maximum speed but many conditions absolutely foreign to the drive were responsible for operating the presses at reduced speeds. Under these conditions it was not only logical but good common sense to gear for a speed closer to that at which the presses were actually being run. In this connection, I can only suggest that you get the facts. Ask anyone who has made such a change whether it was because the drive would not operate the press at the higher speed or because other conditions, entirely beyond the drive, made it advisable that the newspaper printing presses be run at a lower speed.

I know of no case where presses are being run at higher speeds because they are driven with d.c. equipment and could not be driven just as well at the same speeds with a.c. equipment. In fairness to the problem I suggest you ask someone who has had actual experience with a.c. drives—someone who knows all the facts.

I hope this article will help to clear up the controversy between a.c. and d.c. drives. I have been sincere and honest and have only stressed those facts which are already well established. Again, keep in mind that electrical manufacturers make both types of equipment and are honest in their desire that you purchase no needless equipment. I can ask only in fairness to yourself and your newspaper, that you personally consider the actual facts if and when you are confronted with this problem.

Craftsmen Convention Chairmen

Following are the names of Committee Chairmen for the International Association of Printing House Craftsmen Convention, sponsored by the Cincinnati Craftsmen, to be held at the Netherland Plaza Hotel, Cincinnati, Ohio, August 25, 26, 27, 28, 1935.

General Chairman
JOHN M. CALLAHAN,
U. S. Printing and Lithograph Co.,
Norwood Station, Cincinnati, Ohio.

Vice-Chairman
J. H. CHRISTINA,
The Bohnett Co.,
Third and Vine Sts., Cincinnati, O.

Secretary
AUGUST J. BRUDER,
2354 Stratford Avenue,
Cincinnati, Ohio.

Treasurer
JAS. E. SULLIVAN,
The Sullivan Printing Works,
1070 Gilbert Ave., Cincinnati, O.

Transportation
CARL HUETHER,
The American Printing Ink Co.,
1810 Campbell St., Cincinnati, O.

Badges
LEO T. FOLZ,
The Cincinnati Process Engraving Co.,
Court and Sycamore Sts., Cincinnati, O.

Entertainment
ALEXANDER THOMSON, Jr.,
Champion Coated Paper Co.,
1406 Enquirer Bldg., Cincinnati, O.

Ladies
MRS. GEORGE WAGNER,
2431 Ohio Avenue,
Cincinnati, Ohio.

Hotel and Banquets
THEO. C. DORL,
U. S. Prtg. & Litho. Co.,
Norwood Station,
Cincinnati, Ohio.

Publicity
B. J. WOERMANN,
The American Type Founders Co.,
648 Main St., Cincinnati, O.

Registration
JOS. KORNMANN,
The Standard Publishing Co.,
Ninth and Cutter Sts., Cincinnati, O.

Show and Exhibits
LEE V. AUGUSTINE,
The Printing Machinery Co.,
436 Commercial Square, Cincinnati, O.

Finance
JACOB G. NESSLER,
The Nessler & Wagner Machine Co.,
Rear 207-15 E. Sixth St., Cincinnati, O.

Printing
E. J. McGILL,
The Bohnett Co.,
Third and Vine Sts., Cincinnati, O.

Hosts
WM. E. RICHARDS,
Bingham & Richards Mfg. Co.,
Power Bldg., Cincinnati, O.

Hanson Promoted

The Lanston Monotype Machine Company announces the appointment of George H. Hanson to be Assistant to Manager James H. Sweeney of its Western District, the headquarters of which are located at 126 W. Jackson Boulevard, Chicago. Mr. Hanson has been associated with the Monotype Company for almost twenty years in the capacity of sales representative, and his personal acquaintanceship is very wide among printers and publishers in all sections of the Middle West. He is a practical printer and his broad experience in matters pertaining to composing room operation has been of great value in enabling him to render service to Monotype users. Mr. Hanson will continue to call on the trade in the states of Indiana and Michigan, which he has covered for many years.

Now it is Assistant to Manager George H. Hanson, of the Monotype Western District Office in Chicago.

New Intaglio Ink

The search for the ideal intaglio printing ink is still actively proceeding. According to one of the recently disclosed process (German Pat. 605,384) for eliminating the necessity for inflammable solvents, the pigment is ground with a vehicle consisting of a solution of rosin in aqueous alkali in the complete absence of any dangerously volatile organic solvent. Experiments revealed that an aqueous alkali solution of rosin acts as a pigment-binder yielding waterproof coatings on paper if ammonia is used in place of part of the alkali necessary to saponify the rosin. Any tendency towards troublesome foaming is easily reduced by incorporating a little essential oil. The process has the advantage of being carried out in the cold. For example, 2 kilos rosin are dissolved in a mixture of 1.6 kilos caustic potash solution (10 per cent strength) and 0.24 kilo ammonia (s.g. 0.910) and the clear solution thoroughly stirred with 4 kilos water and 0.2 kilo turpentine. 100 parts of the solution are ground with 5 to 25 parts of the pigments commonly used for inks of this type.—*American Ink Maker.*

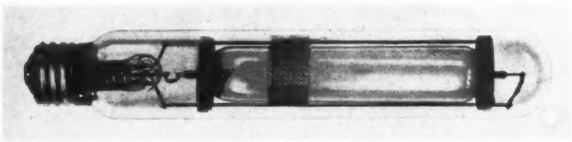
New Lamp

And Other Equipment Announced

By STAFF WRITER

New GE Lamp

The General Electric Vapor Lamp Company, Hoboken, New Jersey, has perfected a High Intensity Mercury Vapor Lamp which is particularly suitable for high bay lighting. It is a new approach to an industrial white light which is restful to the eye. It enables quick visual response to minute details. It promotes continued use of the eyes without fatigue. Its efficiency can be explained by saying that it produces 14,000 lumens at a consumption of 400 watts or approximately 35 lumens per watt. It is made with mogul screw base for vertical mounting. The lamp has an over-all

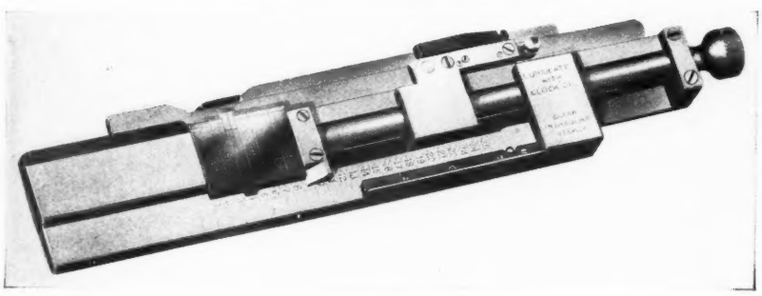


length of 13 in. and is designed for operation on 110 v. and 220 v., 60 cycle circuits. It has an average life of 1500 hours.

From a technical standpoint the high intensity light is not white. It is a combination of blue light and yellow-green which produces a whiter sensation to the observer. Due to the practical absence of red rays in the light, true color values are not always rendered when red materials are involved, but this has no immediate bearing where fine color discrimination is rarely called for. The make-up of energy which gives the high intensity lamp its color quality is interesting in that the major portion of energy is produced in the center of the visible spectrum (yellow-green area) to which eyes respond quite efficiently. The balance of the visible energy produced by this lamp is at the blue end, which will it has little visual value reduces the glare factor and produces the sensation of a whiter light.

Ludlow Self-Centering Stick

A new precision self-centering matrix stick, which is also self-quadding, is announced by the Ludlow Typograph Company, 2032 Clybourn Ave., Chicago, Ill. The stick is quickly set to any desired measure. Then it is necessary only to assemble matrices into the stick, push in the quadding slide and turn the knob to lock the latter into place. The line is then ready to cast, automatically justified and quadded-out on both sides to center on the desired measure.



View of Ludlow new self-centering stick which is especially useful in plants where a large number of short centered lines are set.

The automatic centering is accomplished by a simple but interesting one-to-two differential rack-and-pinion arrangement. The stick may be used as a plain self-quadding stick, to set lines flush left or right, but this is recommended only where the flush lines form a minor part of copy which calls for short lines being centered.

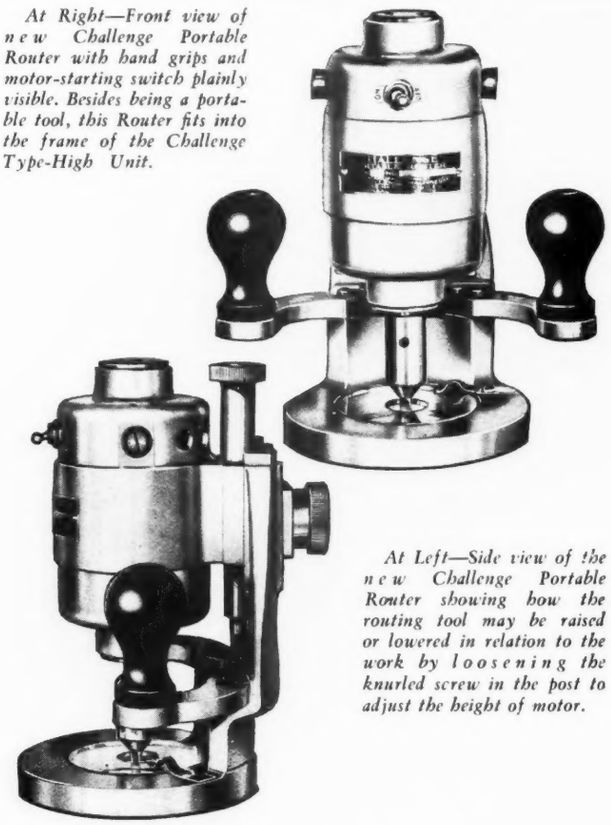
The saving of time effected with this stick, it is claimed, is noteworthy in plants setting a large number of short centered lines.

New Challenge Router

The Challenge Machinery Co., Grand Haven, Michigan, recently announced the latest model Challenge Portable Router which introduces new features of operation and adjustment.

A feature of the Router is the centralized control of the router tool setting. The movable motor unit travels in a groove and by turning a screw at the top the router tool can be raised or lowered to the proper height for making accurate contact with the work. In this way the tool is always cutting square with the plate. There is no possibility of setting the tool at an angle. A lock screw at the back secures the motor after it is adjusted to the right height. The new unit also provides two convenient handles which give the operator a positive grip to make it easy for him to manipulate the router.

At Right—Front view of new Challenge Portable Router with hand grips and motor-starting switch plainly visible. Besides being a portable tool, this Router fits into the frame of the Challenge Type-High Unit.



At Left—Side view of the new Challenge Portable Router showing how the routing tool may be raised or lowered in relation to the work by loosening the knurled screw in the post to adjust the height of motor.

The Router is light in weight. It plugs into any light socket. It can be used to save time and prevent delays during make-up, make-ready, or after a job is on the press. A heavy fibre plate on the bottom, it is claimed, protects the finest lines or smallest type from scratches. It can be used

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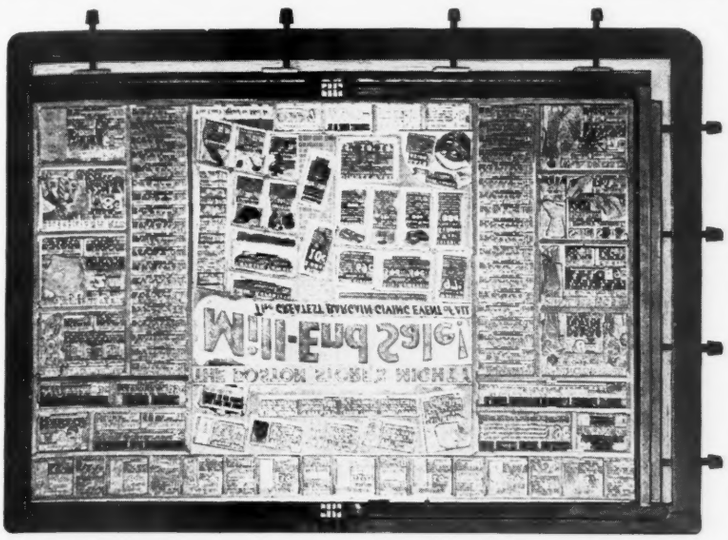


Double-page newspaper chase provided in the plant of the Joliet (Ill.) Herald-News *by cutting one side from each of two page chases. The chases were then butted and welded at the joint. In the process of rolling the mat one-half the form is rolled first. Then the form is moved to the far side of the matrix roller bed and another mat is made from the other half.*

Double Pages

Made With Single-Page Equipment

By George R. Bolton*

The setting of type and rolling mats for a double-truck newspaper form in a composing room where a double mat roller and casting box facilities are not included in the mechanical equipment has been a problem for mechanical executives in medium-size newspaper plants. It has been customary to set the type matter in two single pages and then either by measuring the type or taking proofs lock the forms so as to match the type.

Having quite a number of double-truck advertisements in the course of a year at the *Herald-News*, I devised a means for setting the type matter in one complete form as is shown in the illustration, locking it in a double chase and then taking a single-page dry mat from either side. The form is rolled on a Goss heavy-duty dry mat roller, the bed of which measures 36 in. by 50 in. In this process one-half the form is rolled first. Then the form is moved to the far side of the bed and a mat is made from the other half.

In setting the double-page advertisement, the ad compositor proceeds exactly as in the case of double-page equipment.

We did not have a double-page chase but provided one by having one side cut from each of two single-page chases which were then butted and welded. A double-page truck was improvised by fastening a steel plate to the top of a single-page truck.

In the illustration it will be noticed that a brass plate is riveted at the top of the chase and a similar plate is fastened to the locking bar at the foot. In the center of each plate is scribed a line which represents a vertical center line dividing the type matter into two equal sections. On either side of each center line in the brass plates and spaced ½ in. from each side are two other scribed lines. The lines scribed on the brass plates are reproduced in the mats and serve as guides for the stereotyper in trimming the mat and later designating the position where the casting box bars should be placed.

The mats are cast just the same as if the two pages were set separately and made up in two forms and no extra work is necessary either in rolling or casting the mats.

The setting of double-truck advertisements in this manner does away with the setting of type in broken lines, of many different length and illustrations in the center of the area where the two pages join normally can be used without splitting. The match-up, if properly handled, should be excellent. These mats require the same amount of care and handling as would any double-truck mats. The mats should be toasted the same length of time, in the same heat and cast as nearly as possible under the same conditions to insure perfect match.

We have been setting all of our double-truck advertisements in this manner for the past five years and find it enables us not only to do a much better job than were two pages to be composed singly and at a saving of 30% of the time usually required to set the type. We have printed 76 double-truck advertisements in the past 12 months.

**George R. Bolton, Superintendent of the Composing Room in the Plant of the Joliet (Ill.)* Herald-News.

Ideal's New President

Wells A. Lippincott, former Vice-President of the Ideal Roller & Manufacturing Company, was elected President of that concern at the annual meeting held in Chicago on February 11, 1935. Walter Schuttler, former president, is now Chairman of the Board.

Death Claims Fred Bott

Fred W. Bott, Manager of the New Orleans Agency of the Mergenthaler Linotype Company and personally known and esteemed by a host of publishers, printers and others in the South and Middle West, died of heart failure, February 18. Death occurred in Cameta, Ga., while Mr. and Mrs. Bott were motoring to Montgomery, Ala.

In December, 1906, Mr. Bott was made manager of the New Orleans Agency, the position he continued to fill until his death.

He is survived by his widow, Mrs. Louise Bott, and three sons, Harold F., Herbert and George. Herbert F. and George are with the New Orleans Agency. Herbert is an aviator.

Burial took place February 20 at Metairie Cemetery, New Orleans.

Control Variables

In Newspaper Mechanical Equipment for Better Print

By LEON A. LINK*

THE success of a newspaper generally depends upon two things—its appeal to the reader and the effectiveness of its advertising. They are both very important. The mechanical departments have a great deal to do with the effectiveness of advertising and the general appearance of the newspaper.

Pictures are becoming a more important factor in the development of newspaper reader interest. More pictures in both news and advertising means we must pay more attention to better reproduction of pictures. Many newspaper presses have been equipped with harder blankets to improve printing of halftones. These harder blankets have made new problems for the other departments and the manufacturers of equipment and supplies for these departments. It will take the full cooperation of the newspaper mechanical, photographic and art departments and the manufacturers if the desired improvement in halftone reproduction and general appearance of the newspapers is to be accomplished.

If we are going to continue to use these harder press blankets (and many think we are) we must give the pressroom a much better plate than we have provided in the past. The "hills and valleys" will have to be eliminated as much as possible. In an effort to improve the stereotype plate let's begin at the start and try to determine some of the things that must be done.

Many photographers employed on newspapers, it seems, have not learned that the picture that looks good in the home will not make a good newspaper cut. They still put the woman with the white dress in front of a white background or the man with a black suit before a black wall and so on. Of course, action pictures are taken when one cannot pick the background. However, there is room for much improvement.

The art department is next. How well the job is done there depends upon the ability of the individual doing the work and the time allowed to do it. More art should be passed through the art department just for the purpose of obtaining better high-lighting effects in the finished newspaper. A good artist can work wonders with proof photographs.

We all know it is necessary for engravings to have properly etched depth which again is dependent upon ability and time, assuming the department is properly equipped. If everything is done properly in the engraving department there is still one trouble-maker—the lack of uniformity of zinc. There is a need for a uniform thickness in zinc which does not vary from 0.004 in. to 0.008 in. in thickness*. With that variation existing the picture is started wrong when it leaves the engraving department. We should have zinc that does not vary more than 0.001 in. in thickness.

Some newspapers are attempting to meet the situation caused by the variation in thickness of zinc by using stereotype base under cuts. When this is done each piece is run through a shaving machine with the cut under the base so the base will be trimmed to the desired height to compensate for the variation in thickness of each individual cut. If the right kind of a shaver is used quite satisfactory results can be obtained. Just any kind of shaver will not do an accurate job. This operation takes additional time and cuts cannot be rushed through to catch editions as fast as they could if it were not necessary to shave the base for each cut separately. Much time is saved when the cut can be placed on its previously prepared base in the form so that the form can be sent to the stereotype department as soon as the engraving department delivers the cut.

Many composing rooms use steel base or machine-cast base under cuts. If you were to "mike" steel base you might find quite a difference in the height of the sections. If there is, you have both the variation in the zinc and the base with which to contend. Metal shrinkage, wear of equipment and improper adjustments will also cause machine-cast base to vary to some extent. Solid steel base which can be made accurate in height together with accurate zinc would help to provide better printing and also eliminate delays in getting pictures into editions.

Besides the inaccuracy in the height of the cuts in the form there is much to be accomplished in securing more accuracy in the height of type, rules and borders.

We have made a number of tests on different kinds of display matrices, both on typesetting and type-casting machines. We have found as much as 0.004 in. difference in

Checking Accuracy of Product

The time is coming when newspaper mechanical executives, more fully than now, will maintain inspection systems for the control of variables in the mechanical departments of newspapers just as is done in some of the manufacturing processes of our major industries. There is too much competitive attraction to catch the public eye for publishers to disregard the possibilities of further improvement in printing. The creation of the A. N. P. A. Mechanical Department was a major step in the right direction, since which time the mechanical side of newspaper printing has received considerable attention and mechanical executives generally have been made conscious of the need for a better product. Mr. Link has written an important item with respect to the use of measuring devices to determine the cause for many printing problems.

The demand for accuracy in newspaper production is growing. It is a healthy sign of the times.—EDITOR.

*Superintendent of Composing Room, Des Moines *Register* and *Tribune*, Des Moines, Iowa.

*In the July, 1934, PRINTING EQUIPMENT ENGINEER, W. Roy Manny of the Rolled Plate Metal Company, stated that it is desirable for the mechanical executive in ordering sheet zinc to specify the *exact* thickness in thousandths of an inch and in case any trouble arises as to gauge, any reputable manufacturer of photoengraving zinc plates will be glad to accept the responsibility for plates delivered which in any spot are more than 0.001 in. thicker or thinner than the exact thickness specified.—Ed.

Continued on page 32

MEMPHIS

TRADE LINOTYPE MARK

BOLD

One of the most used faces of today is this simple, square serif design. A face that has caught the spirit of the times. Almost as severely plain as the sans serifs but with an entirely new feeling. Memphis (Girder) has made a place for itself in the fields of advertising composition and commercial printing. Memphis is made for the Linotype in two weights, Light and Bold, and in a full range of sizes from 6 to 144 point.

ITALIC

The two-letter sizes are offered in two combinations: either the Light and Bold together, or either weight with its own italic. Small caps are also made in Light and Bold in the two-letter sizes. These are shown in the signature.

MERGENTHALER LINOTYPE COMPANY

BROOKLYN, NEW YORK · CHICAGO · SAN FRANCISCO · NEW ORLEANS

CANADIAN LINOTYPE, LIMITED, TORONTO, CANADA

REPRESENTATIVES IN THE PRINCIPAL CITIES OF THE WORLD

PHIS

LIGHT

today is this simple,
that has caught the
everely plain as the
ntirely new feeling
a place for itself in
position and com-
s made for the Lino-
d Bold, and in a full
oint.

fered in two combi-
d Bold together, or
lic. Small caps are
old in the two-letter
signature.

MERGENTHALER LINOTYPE COMPANY

BROOKLYN, NEW YORK · CHICAGO · SAN FRANCISCO · NEW ORLEANS

CANADIAN LINOTYPE, LIMITED, TORONTO, CANADA

REPRESENTATIVES IN THE PRINCIPAL CITIES OF THE WORLD

SOLD

To The

NEW YORK MIRROR

TWO

Form-O-Scorch

MACHINES

By the

American Publishers Supply

BOX 131, WEST LYNN, MASS.

Not An Exact Science

Asserting that ink making is not an exact science, Bruce Berckmans shows why the variables encountered in newspaper plants make it impossible to recommend specific formulae even in one plant. These variables are listed in this paper. The difficulties encountered with cold newsprint and humidity and the effect of each upon the paper stock in relation to ink receptivity are explained.—EDITOR.

News Inks

Mileage and "Color" Discussed

By BRUCE BERCKMANS*

INK making is not an exact science. This remains true in spite of years of diligent efforts of technicians in the industry and of such splendidly equipped and staffed laboratories as the Government Printing Office. In view of the effect which can be caused by change in any one or combination of the many variable factors existing in any printing plant, it would be manifestly unwise to recommend specific formulae for each set of conditions which may exist in any one plant and which might change suddenly without prior indication.

Many of the same factors affect both mileage or spread of ink and the blackness of print. These factors vary widely not only in different plants but frequently in the same plant, although that plant may appear to be operating under uniform conditions. Many of these factors are entirely beyond the control of your ink supplier. Too frequently, these factors are not held properly responsible by plant superintendents or pressroom foremen for difficulties encountered. Operators overstress inks as remedies or on the other hand, as being responsible for their troubles, presumably because they

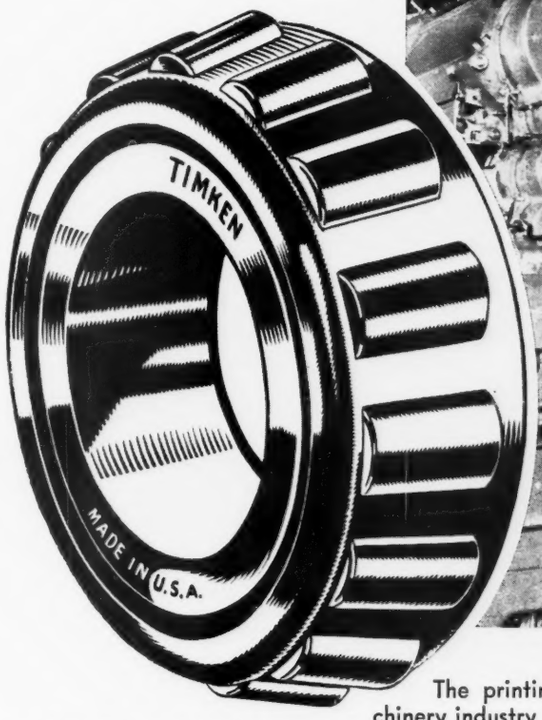
*Manager, Ink Division, J. M. Huber, Inc., New York, New York. Abstract of paper delivered before the Inland Daily Press Association meeting, Chicago, Ill., Feb. 20, 1935.

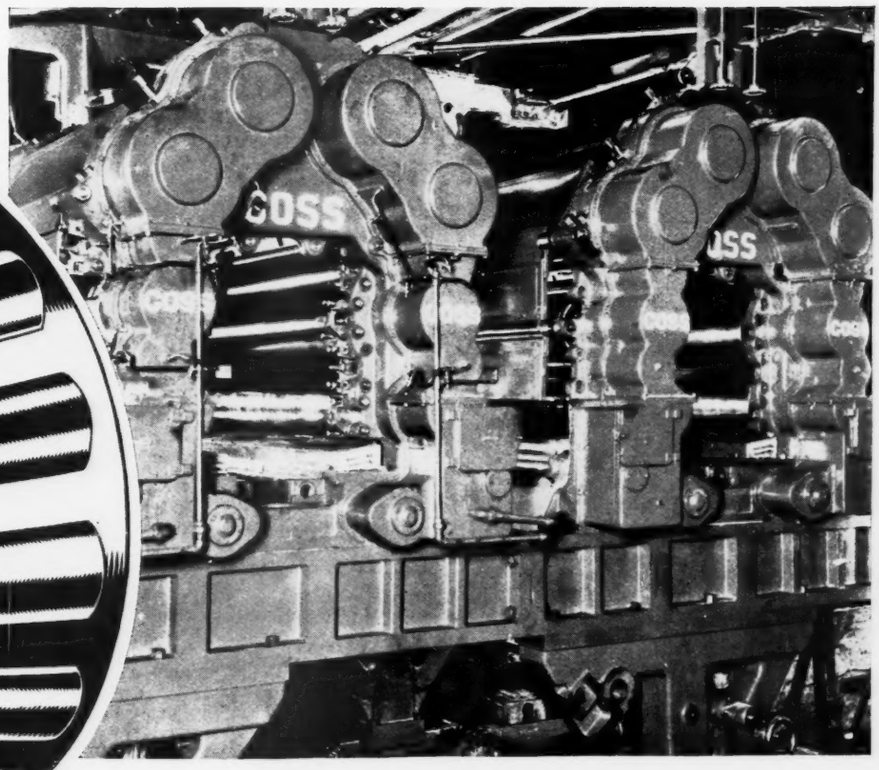
Mr. Berckmans suggests that impression be increased for high speeds, even to the point of embossing at low speeds, in order to improve "color."

TIMKEN BEARINGS

promote higher Printing Speeds and greater ACCURACY

Tapered Roller TIMKEN BEARING EQUIPPED





The printing machinery industry is feeling the effects of the demand for higher productive speeds coupled with better quality work in all classes of printing, especially in the newspaper and magazine fields. Even the highest grades of commercial printing, including de luxe catalogues, are being produced at higher speeds than ever before. As a result the bearings in all types of press equipment are assuming greater and greater importance and are receiving more and more consideration.

Leading equipment manufacturers have found in Timken a bearing that meets every modern requirement of friction elimination, speed, smoothness, precision, load capacity, lubricating simplicity and cleanliness. The same qualities that enable the Timken Bearing to meet tolerances as close as 1/10,000 of an inch on the spindles of precision machine tools are being used to equal advantage on all plate and impression cylinder shafts of the huge Goss press built for the Chicago Tribune, which has a maximum productive speed of 60,000 newspapers per hour.

It will pay you to install Timken Bearings in the presses you are designing or modernizing. Timken engineers will gladly cooperate.

THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO

TIMKEN *TAPERED ROLLER* BEARINGS

They Wanted Solid Plates and Sharp Faces

Imperial
METAL

THE IMPERIAL TYPE METAL CO.
Philadelphia · New York · Chicago · Los Angeles

do not realize the effect of the more variable factors on their printing, which I shall mention. The operator examining the printed sheet is often too prone to consider only what he sees—paper and ink—subconsciously forgetting the effect of engraving, composition, stereotyping, presswork, equipment and other materials.

Comparison of blacks is a trained ink matcher's hardest task. What value the opinion of the untrained individual? Comparison of blacks is largely relative. Lampblack by itself is very black. Compared to carbon black, it looks grey. Likewise bone black makes carbon black look grey but, unfortunately, it is not practical to use bone black in news ink.

Satisfactory black print is largely a matter of contrast. The same black ink looks blacker on a white stock than it will on a tinted sheet. Correct other faults and compare a truly clean print with a previously unsatisfactory print made with the same ink. You will be surprised.

It seems almost too obvious to say that ink which does not remain on the printed surface, doesn't help the mileage or the blackness of the print. Mileage or blackness of print are adversely affected by one or more of the following:

1. If ink is too weak it will require excessive ink flow. Today this is rarely the case. A recent examination of virtually every news ink manufactured in the country disclosed that all of them contain between 10% and 14% pigment. Greater pigment content is discouraged, not because of cost but because of printing difficulties encountered.
2. Ink containing too much pigment causes offset on packing, pipe rollers and angle bars. This causes smudge, reduces contrast between paper and print and increases consumption.
3. Ink that is too thick produces many of the same effects as ink that is too strong. Thick ink also has tendencies to pick the surface of the print, and do not cover properly the irregularities in the printing surface.
4. Ink that is too thin causes excessive penetration. This may increase consumption or prevent the use of enough ink to cover the solids properly.
5. Ink flying obviously increases consumption. It also reduces the effectiveness of ink on solids when a mist of ink rises from the surface of plates or rollers.

However, unsatisfactory printing due to one or more of the foregoing ink faults, can be and are more often caused by:

1. Rough or shallow cuts and mats.
2. Rough or uneven plates.
3. Paper that is too hard or too non-absorptive.
4. Paper of uneven or too porous formation, absorbing too much ink too readily.
5. Poor roller surfaces or uneven roller setting.
6. Trying to cover irregularities in the printing surface with too much ink.
7. Rapid variation in atmospheric conditions.
8. Differences in the surface of press blankets.

As regards the effects that variation in paper has on the working of inks, I can only sympathize with paper makers whose production speed has been increased drastically and whose raw materials vary so widely. The fact remains that more often than one realizes, there is enough variation in paper to seriously affect printing not only between stock from different mills or different shipments, but variations in paper from the same shipment and even from the same roll. The harder the paper, the less readily it takes ink, leading to a smear, resulting from accumulation on blankets and pipe rollers. The more porous the paper, the greater the ink penetration. Both factors increase ink consumption and the former definitely decreases blackness of print.

I want to stress particularly, the effect of cold paper. Cold contracts paper fibers, giving much the same effect of too hard a finish. At the same time, the contraction opens up the interstices of the paper formation, causing excessive ink absorption. Thus cold paper works a twofold evil. Whenever possible, don't print on paper until it approximates ink and room temperature. Temperature variations make ink too thin if it becomes too hot and too thick if it becomes too cold, causing attendant trouble.

As small a variation as 2% in the humidity of paper causes marked difficulties. When the humidity is too great, the

ALEMITE LUBRICATION SAVES MONEY

—IN THE LARGEST PRINTING PLANTS—IN THE SMALLEST JOB SHOPS

● This photograph shows a line of fifteen Hoe 16-page press units and three double folders operating in the plant of the Chicago Daily News—100% Alemite equipped.

This Modern Lubrication System Cuts Lubricant Costs—Saves Hours of Labor—Gives Positive Protection to Vital Bearings on Printing Machinery

● Here's a view of a 30,000-pound Hoe cylinder—showing the main and thrust bearings. Subjected to terrific pressures, rotating at aproximately 400 R.P.M., these bearings require the ultimate in positive lubrication. To insure this, R. Hoe and Company have chosen the Alemite Lubrication System for controlled application of the correct lubricant. Now operators know, *to the ounce*, the amount of lubricant that is delivered to each bearing closure—know that it will *stay where it's put.*

For anti-friction bearings of the type shown here, Alemite Lubrication Engineers specify Alemite Temprite No. 33 E.P.—a pure, solidified oil that remains plastic in the bearing, thoroughly lubricating its entire surface and forming an effective seal against the entrance of paper dust or other drying or abrasive substances.

Now, whether you operate a printing plant of the largest size, or a small job shop, you can give every machine you own the same lubrication protection that the largest manufacturers are giving new equipment. You can modernize Presses, Cutters, Folders, Stitchers, etc.—eliminate grimy, dripping, hard-to-service oil holes and uncertain grease cups and *save up to 80% on lubrication costs*—by simply installing Alemite fittings on vital bearings and servicing them with an Alemite gun.

In lubricant savings alone it will pay you to adapt the Alemite High-Pressure Lubrication System to plain as well as anti-friction bearings on any machine in your shop. But in addition, this modern, clean, positive system brings even greater savings on power and labor—steps up operating efficiency. For Alemite makes correct lubrication *certain* at low cost.

Get complete information on how you can quickly and easily adapt the Alemite system to any machine without interrupting service. Get in touch with your industrial supply house today, or send a note on your letterhead to:

ALEMITE CORPORATION *(Division of Stewart-Warner Corp'n.)*
1868 DIVERSEY PARKWAY CHICAGO, ILLINOIS

ALEMITE

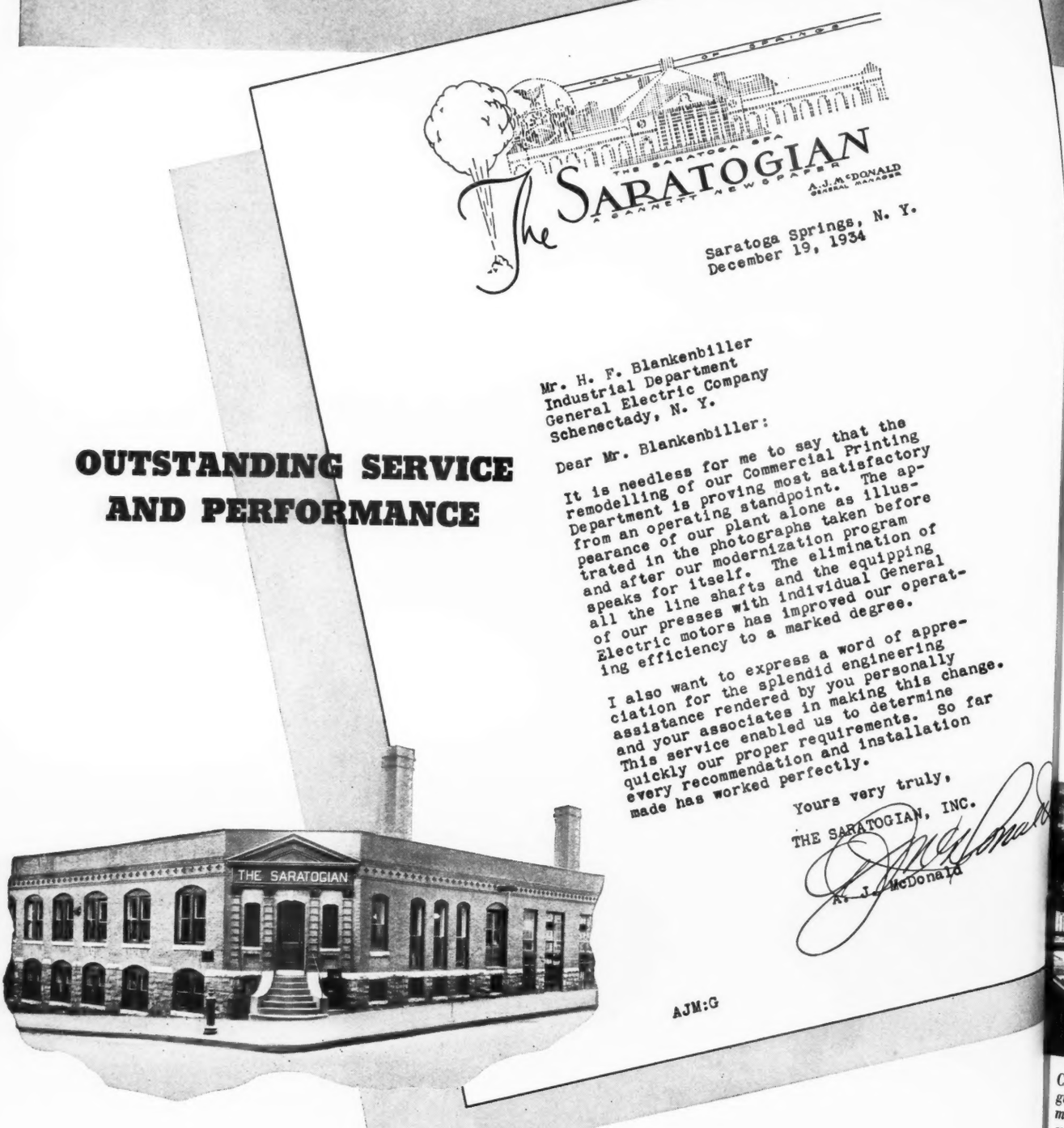
REG. U.S. PAT. OFF

Controlled Application of the Correct Lubricant

NRA CODE

This man is cutting costs and protecting mechanical investments in thousands of print shops. Is he saving money for you?

How One Job Plant



THE SARATOGIAN
A SCRIPPS-HOWARD NEWSPAPER
A. J. McDONALD
GENERAL MANAGER

Saratoga Springs, N. Y.
December 19, 1934

Mr. H. F. Blankenbiller
Industrial Department
General Electric Company
Schenectady, N. Y.

Dear Mr. Blankenbiller:

It is needless for me to say that the remodelling of our Commercial Printing Department is proving most satisfactory from an operating standpoint. The appearance of our plant alone as illustrated in the photographs taken before and after our modernization program speaks for itself. The elimination of all the line shafts and the equipping of our presses with individual General Electric motors has improved our operating efficiency to a marked degree.

I also want to express a word of appreciation for the splendid engineering assistance rendered by you personally and your associates in making this change. This service enabled us to determine quickly our proper requirements. So far every recommendation and installation made has worked perfectly.

Yours very truly,

THE SARATOGIAN, INC.

A. J. McDonald

AJM:G

OUTSTANDING SERVICE AND PERFORMANCE

THE SARATOGIAN

G E N E R A L

Modernized for Profit with G-E Press Drives

WHEN The Gannett Newspapers last year acquired *The Saratogian*, they were faced with the problem of immediate modernization of the job-printing department.

Here's what they did:

Replaced an unwieldy system of line shafting and belt drives with General Electric individual motor drives for the presses, cutters, and other machines.

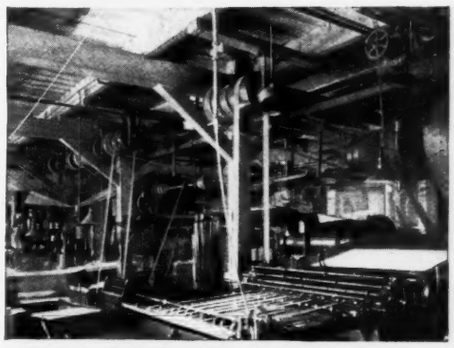
Removed an elevator shaft which projected onto the floor of the pressroom.

Rearranged the plant to take advantage of the extra space made available by removal of the old power system and the elevator shaft.

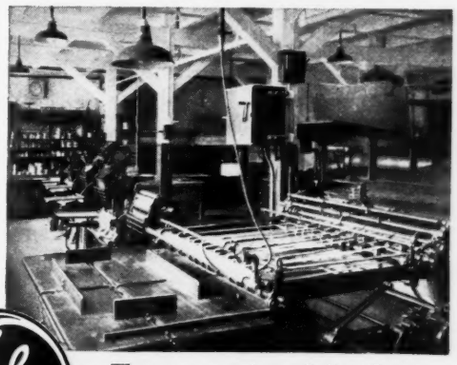
Here are the results:

1. Press operation is easier; production greater. There are no longer any complicated drive shafts and belts to get out of order, causing delays in production and wasting money. G-E motors and control reduce maintenance costs.
2. Power consumption is now regulated entirely by the number of presses and other machines actually in operation. G-E individual motor drives are economical.
3. Working conditions have been made safer and more pleasant.
4. The department's composing room, previously located on the floor above, has been moved to the pressroom floor, thus simplifying and speeding up production.
5. Space on the upper floor formerly occupied by the composing room has been converted into attractive, modern offices.

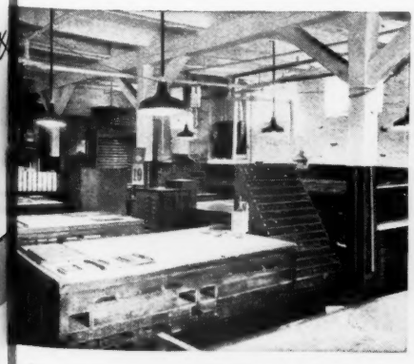
All of these results contribute to increased profits for *The Saratogian*. Your plant, too, may offer opportunities for profit-building modernization through the use of efficient, economical General Electric motor drives. A printing-equipment specialist in the nearest G-E office is ready to help you. Why not call him? General Electric Company, Schenectady, N. Y.



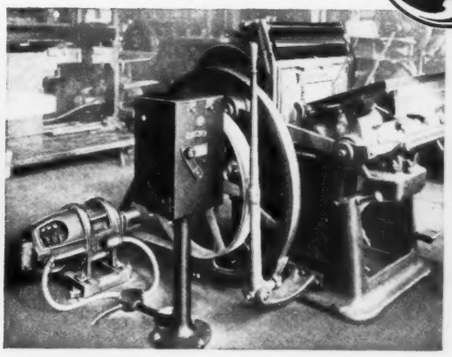
View in the job printing plant of "The Saratogian," Inc., before modernization



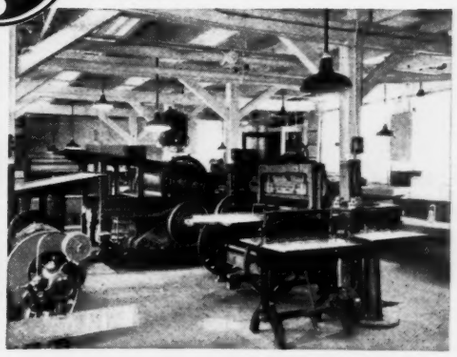
The same section of the plant after modernization with General Electric individual motor drives



Composing room of "The Saratogian's' job plant, located in space made available through plant modernization



A typical installation of a G-E individual motor drive, with G-E controller, in the plant of "The Saratogian." G-E press drives are compact and efficient



An orderly, convenient, pleasant shop—after G-E drives replaced the old line-shaft system

020-126

GENERAL ELECTRIC

This
Stereo Superintendent Won Promotion

PICKED out as the logical man to fill the shoes of a departing mechanical superintendent.

He had run his own department admirably. He had been the most helpful figure at staff meetings, whatever problem was under discussion.

In his heart he gives a lot of credit to Certified Mats. They helped in the fine results, as well as the untroubled routine which gave him leisure to study the whole problem of production.

For dependable stereotyping, rely on Certified Dry Mats, made in the U. S. A.

CERTIFIED DRY MAT CORPORATION

338 Madison Avenue • New York City

Certified DRY MATS • • • •

individual paper fibers swell, tightening the formation and making the surface rougher. The roughness might increase ink absorption but this is offset by the tighter stock formation and the oil-repellant properties of moisture. This causes smear, accumulation of ink on equipment and the use of more ink. Excessive aridity opens paper formation by contraction of individual paper fibers, permitting excessive penetration. This also occurs when paper that has been too moist dries out, leaving the surface rough.

We frequently hear that news ink dries too fast or too slow. Ink does not dry—it sets by absorption. The ink must be set into the sheet. While increasing impression is certainly not a panacea for all printing ailments, it is one of the remedies that should be tried first. General practice indicates that if printing speed is increased, more impression must be applied even to the point of embossing when running slowly. Greater contrast and sharper, cleaner printing of halftones can be achieved by mounting cuts well over type-high. Many irregularities in the surface of the solids can better be made to print black by increasing impression rather than by changing flow or make of ink. By doing so, less ink is required to obtain a desired degree of blackness and mileage is correspondingly increased.

When you are dissatisfied with mileage or print, don't jump to the conclusion so often expressed: "It must be ink." Make sure first, that variables in the plant, equipment, atmospheric conditions, paper stock or the human element are not responsible. When you have satisfied yourself as to these factors by diligent investigation, call in your ink supplier. Cooperate with him. Give him all the facilities of your plant. Believe that he is trying to find causes and remedies for trouble—not alibies for his product and that he intends his questions and suggestions to be constructive.

Executives Go Visiting

John A. Burke, production manager of the Gannett Newspapers located principally in the state of New York and including the Hartford (Conn.) *Times*, announced a plan whereby the mechanical executives of the various plants comprising the Gannett Group would "trade jobs" for a few days early in February.

The idea, Mr. Burke, explained, is to have each mechanical executive visit another plant in the Group to see if some idea could be adopted in his own plant with a view of improving production methods, to improve efficiency and curtail operating expenses.

After each executive completed a study of the plants visited he made a report stating how production methods could be improved in his own plant as well as the plants which he visited.

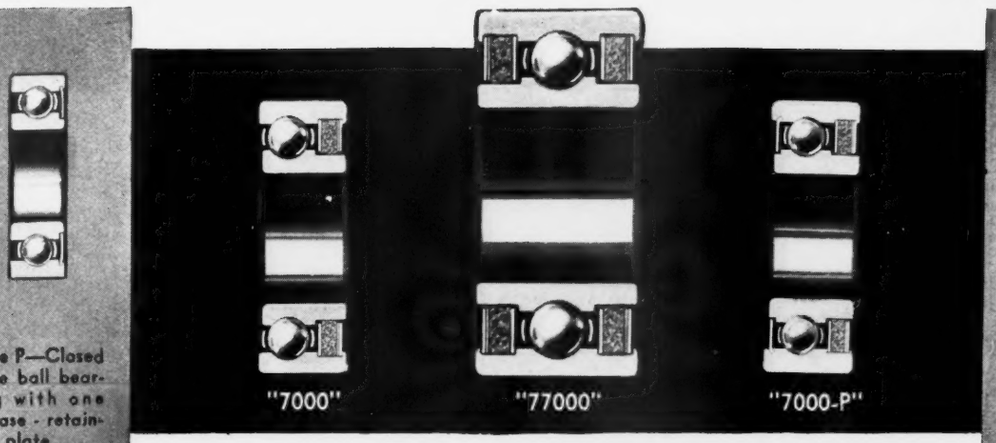
As a result of a publishers' meeting held in Rochester, advertising managers of all papers in the Gannett Group have been requested to institute advertising copy deadlines.

A. T. F. To Move

The huge Kelly Press Plant of American Type Founders Company at Elizabeth, N. J., has been altered and re-equipped to house the company's general office and main foundry, for 32 years located at Jersey City. The move will be entirely completed by April 1.

The layout will be modern and efficient throughout, with material handling cut down and plant productivity greatly increased.

Most of the Jersey City staff of over 500 employees will continue with ATF in its new home. All employees have been asked to remain with the company.



SELF-SEALED

Out of their experience of more than 23 years, NORMA-HOFFMANN engineers — pioneers in the design of enclosed and self-protected bearings —have developed and patented a range of types which meets practically every bearing condition and which affords the mechanical world

The Most Complete Line of SELF-PROTECTED BEARINGS in America

The "GREASEAL" Series of Felt-Protected Ball Bearings—in the three types illustrated above—is marked by the following outstanding features which make for better performance and more lasting satisfaction:- thick, closely-fitting felts between removable plates forming an effective labyrinth against the recessed inner ring - - - FELT SEAL REMOVABLE in its entirety for inspection, cleaning or renewal of grease - - - wide, solid inner and outer rings, with maximum contact on shaft and housing, make inserts in housing unnecessary and militate against slippage, looseness, and escape of lubricant past outer ring - - - felt seal within confines of both rings and not exposed to injury - - - seal construction avoids race distortion, assuring dimensional exactness and quiet running - - - grease capacity ample for long periods of service. . . . . Eight other types of Self-Protected PRECISION Bearings are here pictured and indexed. Write for the complete Catalog. Let our engineers aid you in selection and application.

NORMA-HOFFMANN BEARINGS CORPN.

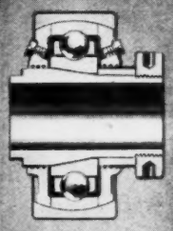
STAMFORD, CONN., U. S. A.

Type P—Closed type ball bearing with one grease - retaining plate.

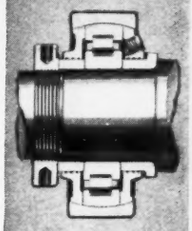
Type PP — closed type ball bearing with two grease - retaining plates.

Type GS — "Greaseal" felt - protected, grease - packed ball bearing.

Type EGS — Adjustable, felt - protected, grease - packed ball bearing.



Type LTW — Self - aligning ball bearing with swiveling grease - retaining side plates and adapter sleeve.



Type RLSW — Self - aligning roller bearing with swiveling grease - retaining side plates.

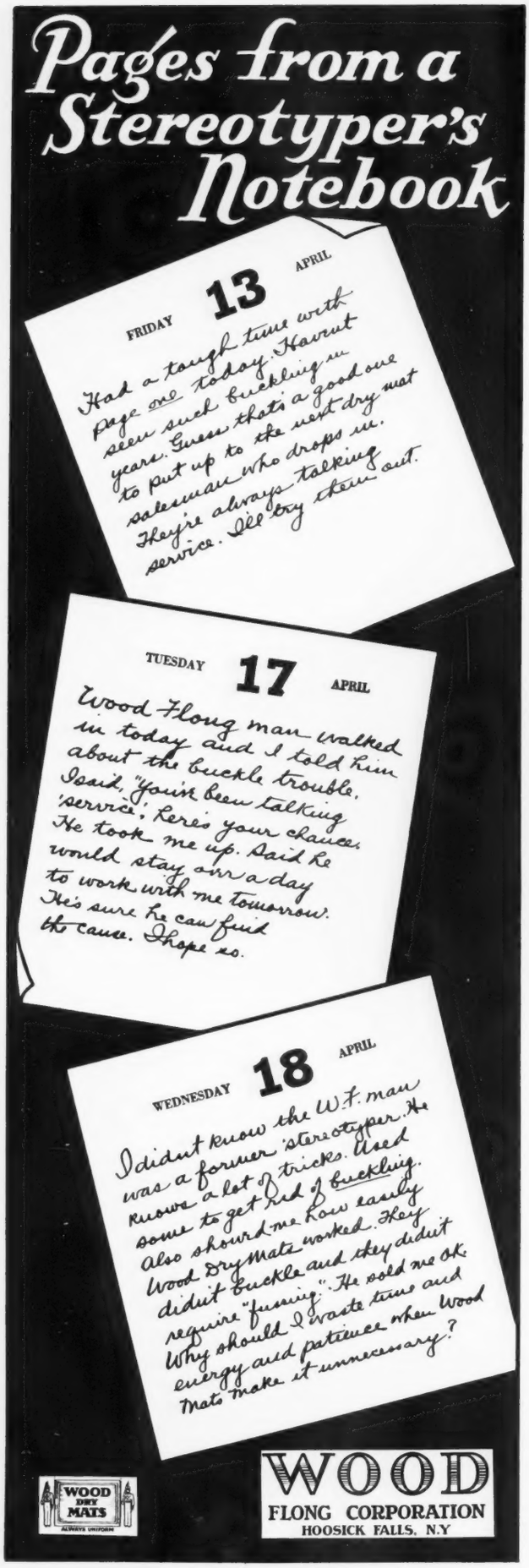
Type RLTW — Self - aligning roller bearing with swiveling grease - retaining side plates and adapter sleeve.

CUP MOUNTING — Designed to use with small open type ball bearings in high-speed devices; furnished as complete units.

"NORMA-HOFFMANN"

PRECISION BEARINGS

BALL, ROLLER AND THRUST


Pages from a Stereotyper's Notebook
FRIDAY 13 APRIL
Had a tough time with Page one today. Haven't seen such buckling in years. Guess that's a good one to put up to the next dry mat salesman who drops in. They're always talking service. I'll try them out.
TUESDAY 17 APRIL
Wood Flong man walked in today and I told him about the buckle trouble. I said, "You've been talking 'service'. Here's your chance." He took me up. Said he would stay over a day to work with me tomorrow. He's sure he can find the cause. I hope so.
WEDNESDAY 18 APRIL
I didn't know the W.F. man was a former stereotyper. He knows a lot of tricks. Used some to get rid of buckling. Also showed me how easily Wood Dry Mats worked. They didn't buckle and they didn't require "fussing". He sold me OK. Why should I waste time and energy and patience when Wood Mats make it unnecessary?
WOOD DRY MATS ALWAYS UNIFORM
WOOD
FLONG CORPORATION
HOOSICK FALLS, N.Y.

Wirephoto

Uses Electric Eye To Send Pictures

By Associated Press Staff

Transmission of news prictures by leased wire side by side with news is the goal toward which newspapers have striven for more than fifty years. Since the first of this year, 51 daily newspapers have been supplied by the Associated Press Wirephoto service with news pictures in 25 cities in the United States.

In each of the 25 equipment rooms over the country the wirephoto days begins with the pressing of a button which starts a power plant. The equipment occupies 240 sq. ft. of floor space in which, in addition to the power plant, are sending and receiving machines for pictures and a "bay" or switchboard for each. The "bay" contains a talking circuit with loudspeaker over which any point in the network may talk to the others. The function of the power plant is to furnish an absolutely constant source of voltage to the sending and receiving machines, for no commercial source of electricity is steady enough. It consists of special generators, regulators and storage batteries. The generators are the sources of power; the storage batteries and regulators keep the generators steady.

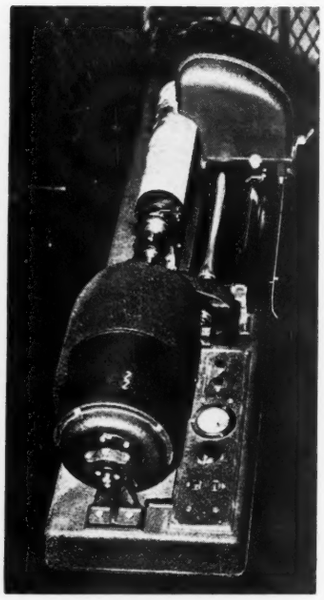


Fig. 1.—Wirephoto Sending Machine, showing pictures being transmitted. In the foreground are a driving motor and a clutch. The motor runs continuously. The clutch enables connection of the motor with the cylinder when a picture is to be sent and at the bottom at the right of motor and clutch are switches for turning on the motor and the light beam. Above them (in order) are a rheostat for controlling the intensity of the light, a meter indicating this intensity, the starting button of the sending machine and an auxiliary button for stopping the machine in an emergency.

The operator, having started his power plant, adjusts the sensitive machinery by meter readings and tunes the light valve mechanism of the receiving machine, making the tension on a little ribbon vibrate at a natural frequency of 1,200 cycles per sec. This operation takes five minutes or less.

Then the control station in the New York office of The Associated Press, which maintains and operates the Wirephoto system for the 51 newspapers of the United States cooperating in its use, opens the talking circuit. All points report that they are ready, and each reports what pictures it has for sending.

Before New York begins to send a picture it transmits for a few seconds, onto the line and into each receiving station,

an amount of power corresponding to the lightest and darkest parts of the picture. Each point adjusts its power to the receiving equipment at the proper value for those two limits, knowing that the receiving machine, when adjusted to receive the two extremes of light and darkness in the print, will handle normally all the intervening shades.

All this has taken less than ten minutes, or has been accomplished in two or three minutes if an important picture was ready to send. Then the signal from the bay of the sending station—three interruptions of power—tells every point to press the button on its receiving equipment, operating the relays which prepare the circuits to start. A few seconds later a smaller button is pressed on the sending machine, starting in the same instant every receiving machine along the line.

A cylinder on the receiving machine at every station, 17 in. long and 12 in. in circumference, has been loaded with a negative upon which can be received a picture of any dimension up to eleven by seventeen inches (the size of half a newspaper page). The negative is fastened around the cylinder and enclosed in a lightproof container.

This negative is then exposed to light from a lamp focussed through an aperture 1/100 in. wide, which opens little or much according to the strength of the current caused by the picture on the sending machine. Where the portion of the incoming picture is very black the aperture which admits light to the negative is nearly closed; where very white, the aperture is almost open.

At the end of the picture the receiving machine automatically cuts off. The cylinder is lifted and taken to a darkroom a step away, where the lightproof container is unlatched and the negative removed and developed. If the picture transmitted was of maximum size, reception took seventeen minutes. Development of the negative takes five more.

A positive print wrapped around the sending machine cylinder, Fig. 1, is scanned in strips 1/100 of an inch wide

Condensed Wirephoto Details

The Wirephoto system links twenty-five cities of the United States from coast to coast in a 10,000-mile double-circuit of leased wires for the transmission of pictures.

Ordinary photographic prints or other graphic material are sent without preparation for transmission and received on negatives.

Transmission is at the rate of 11 sq. in. per min. The light beam which "reads" the picture moves at the rate of 1 in. per min. across a picture 11 in. deep.

A picture 11 in. by 17 in.—the size of half a newspaper page—is transmitted in seventeen min. An 8 in. by 10 in. pictures takes eight min., a 7 in. by 9 in. picture seven min., two 5 in. by 8 in. pictures in seven minutes.

The transmitted picture cannot be distinguished in normal cases from the original print.

A picture sent from any of the twenty-five stations is received simultaneously at all other stations.

The nationwide circuit can be split, however, at Kansas City when desired, to enable papers in each half of the country to send and receive pictures of regional interest.

The Wirephoto equipment at each station consists of a sending machine, a receiving machine, "terminal bays" or switchboards for each, and a power plant to supply an absolutely unvarying flow of current.

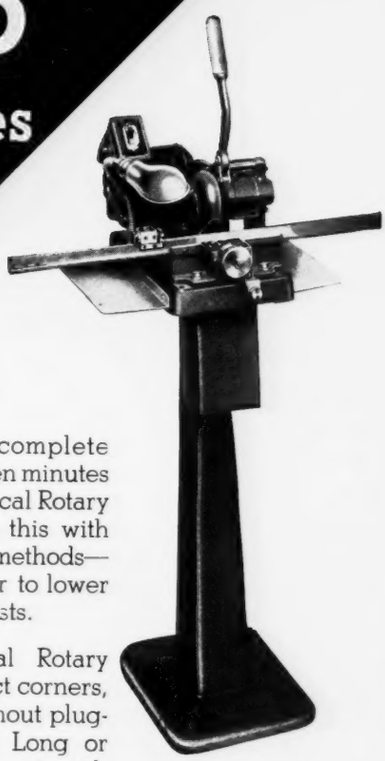
The equipment weighs two and one-third tons and occupies 240 sq. ft. of floor space.

It is the first of its kind for the transmission of telephotographs.

The sending machine transmits, and the receiving machines record, a picture in lines 1/100 in. wide. The cylinders of the machines, upon which the picture is mounted or received, rotate 100 times a minute in perfect synchronization.

The Wirephoto circuit also operates as a telephone circuit for communication between Wirephoto stations when a picture is not being transmitted. This enables coordination of transmission.

800 Miters in 45 Minutes



Borders for forty complete boxes in less than ten minutes with the Rouse Vertical Rotary Miterer. Compare this with ordinary mitering methods—and find the answer to lower composing room costs.

The Rouse Vertical Rotary Miterer gives perfect corners, that "come up" without plugging or tinkering. Long or short lengths are cut with equal ease as if by magic. Production is multiplied.

The Rouse Vertical Rotary Miterer cuts direct from the strip without previous cutting to length. Right and left miters are completed in a single motion. Strips are held by an automatic clamp speeding up operation and ease of work.

The Rouse Vertical Rotary Miterer is built for high-speed production. It does the work of hours in minutes. It is a modern equipment for the up-to-date composing room. It is a profit-maker.

Send for prices and complete description.

Hundreds of border combinations and decorative units can be cut on the Rouse Vertical Rotary Miterer. Sample showings will be sent at your request. Write or mail the coupon.

H. B. ROUSE & COMPANY
2216 Ward Street
Chicago, Illinois

Please send complete information on the Rouse Vertical Rotary Miterer.

Name_____

Address_____

Kork-O-Tan
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by means of a light beam focussed first on a light valve aperture similar in all respects to the light valves used in sound picture work. The light valve chops the beam at a frequency of 2400 cycles, passing a pulsating beam which is turned through ninety deg. to focus sharply on the surface of the picture.

The light beam travels horizontally at an inch a minute. The cylinder, rotating at 100 r.p.m., is approximately 12 in.

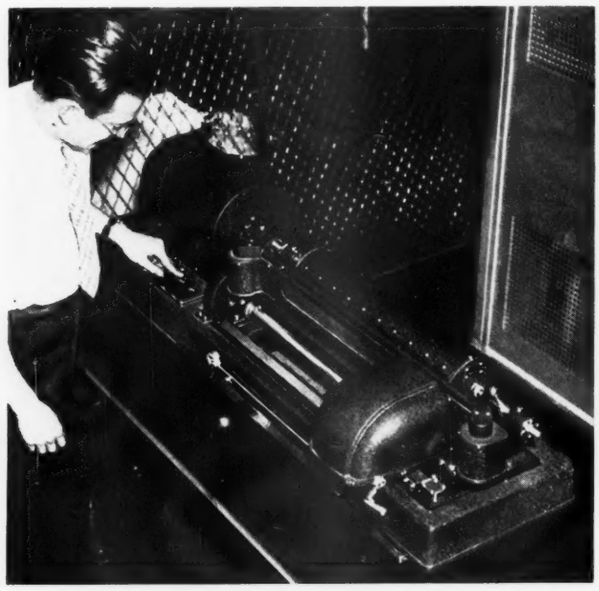

Fig. 2—Wirephoto Receiving Machine on the board of which the operator presses a button to prepare the receiving equipment for operation. The negative is in the lightproof cylinder and a slide has been withdrawn permitting a light beam, under the hood in the foreground, to expose it in lines .01 in. wide. Although the machine is now ready to receive, the operator cannot start it. It will begin to function when the operator at a sending station perhaps 3,000 miles away presses a button on his sending machine starting it and all the receiving machines on the 10,000-mile circuit in exact synchronism.

diam., thus giving a scanning area speed of more than 11 sq. in. per min.

Since the light reflected from the picture surface is proportional to the tone density of the surface, the pulsating beam is thereby modulated with the tone values of the picture before reflection to a photocell of the gas-filled cesium-oxide-on-silver type.

The optical system is made up of a condenser lens to focus the beam on the light valve aperture and an objective for focussing the pulsating beam onto the picture surface. Turning through ninety deg. is accomplished with a small stainless steel mirror, and parabolic surfaces also of stainless steel gather reflected light from the picture for passage to the photocell.

The light valve itself is an aperture 1/100 in. sq. with two parallel duralumin ribbons, 6/1000 in. wide and 5/10000 in. thick, partially covering it and connected at one end to form a loop. A magnetic field at right angles to the plane of the ribbons, furnished by two permanent magnets, and a 2400-cycle current through the ribbons furnishes the shutter action. As the ribbons vibrate on their inward swing the aperture is closed, and on their outward swing the aperture is opened.

Due to the small quantity of light that strikes the photocell cathode, its output is extremely low, and a three-tube dry cell amplifier having the high gain of 77 decibels is used to step up the power to a usable quantity for use on the network. Proper filters eliminate possible extraneous frequen-

cies, and equalizers to eliminate frequency distortion are inserted following the high gain amplifier.

A single-tube amplifier, having variable attenuators, furnishes the regulation necessary just before passing the power to the line.

The normal maximum line power is one milliwatt. That value represents maximum reflected light to the photocell, or the maximum highlight of the positive print. The minimum output is adjusted to fourteen decibels below maximum, the proper value being attained by inserting an adjustable mirror in the path of the light beam before it strikes the picture surface and cutting into the beam just a sufficient amount to send directly to the photocell the minimum light required to get the 14-decibel contrast between the maximum and minimum representing respectively the lightest and darkest tones in the picture.

On the network, the overall gain is kept constant by automatic regulators which remain inoperative during the transmission of a picture. They do their work during the intervals between transmissions, compensating for progressive atmospheric and other conditions that must be contended with on a 10,000-mile network of wire.

At the receiving stations the incoming power is regulated by a variable output amplifier similar to that in the sending circuit, after which it is sent through a full-wave rectifier and filters which eliminate the 2400-cycle carrier, leaving the varying direct current representing the modulation or the actual tone variation of the picture. This varying direct current is used to operate a duralumin ribbon shutter on the light valve of the receiving machine to vary the exposure of a negative, enclosed in a lightproof container on which the picture is received.

The principle of operation of the receiving light valve is similar to that of the sending light valve except that only one ribbon is used. It is caused to move by the varying direct current representing the tone variations in the picture, and not by a constant frequency. This ribbon is tuned to the rather high natural frequency of 1200 cycles, and suitably damped so that all movement of it is forced vibration caused by the incoming picture signal. In this ribbon circuit is a tuned equalizer which prevents unwanted or transient vibrations.

By varying the side motion of the receiving light valve ribbon, the opening through which the light reaches the film is varied proportionately, thus obtaining film exposure in exact proportion to the original tone values of the print on the sending machine. This light beam is adjustable in width,

Thanks, Mr. Rumpler

PRINTING EQUIPMENT ENGINEER,
Cleveland, Ohio.

We pressmen find PRINTING EQUIPMENT ENGINEER vitally interesting and instructive and look forward to each issue for the latest developments in the pressroom.

Wishing you continued success and thanking you, I am

Very truly yours,
CHARLES RUMPLER, *President,*
Paterson Printing Pressmen and
Assistants' Union, No. 34,
Paterson, N. J.

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MERIT WINS

Here is a letter sent us by a well-known mechanical executive who states how his organization is benefited by the use of Booth's Printers' ZINK Cut Cement:

New York Herald Tribune
European Edition THE NEW YORK HERALD

January 28, 1935

Mr. E. A. Booth
E. A. Booth Rubber Co.
364 Rockefeller Bldg.
Cleveland, Ohio.

Dear Mr. Booth:

We have received our second order of ZINK Cut Cement and thank you for your prompt delivery. We are using this material to fasten cuts on stereotype base for the purpose of molding on a mat roll and we find the material to work very satisfactorily and to hold the cut in its proper place in excellent shape.

Very truly yours,

A. H. Burns
Mechanical Superintendent

AHB:AP

This cement is specially made for one purpose only—that of fastening cuts of all sizes to any kind of wood or metal base. It solves your proofing problems by preventing the lifting of cuts by proof press inking rollers and the consequent smashing of type and cylinder tympans.

Once properly placed, cuts will be delivered in the form mounted on bases in proper position.

Printers' ZINK Cut Cement

Only 50 cents per New Large Tube

Lots of 1 dozen, $5 per dozen tubes
Lots of 6 dozen, $4 per dozen tubes
Gross lots, $3 per dozen tubes

BOOTH'S "Green" Keyboard Rubber Rolls

Corrugated or Plain, $1.20 per pair; $6.60 per dozen; 50 cents each in lots of 100.

BOOTH'S Engravers' Concentrated Rubber Cement

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364 Rockefeller Bldg. Cleveland, Ohio

so that the exposure lines may be made to merge and be practically invisible on the finished print.

The scanning of the negative is exactly at the same rate as the scanning of the print by the sending machine, the cylinders rotating at the same speed and the beam moving horizontally at the same rate.

Constant rotational speed for all motors within extremely small limits is obtained in a rather unusual manner. A controlled oscillating circuit, maintained by a tuning fork kept at constant temperature, furnishes 300-cycle power. Part of the power in this circuit is used in connection with an overloaded tube and filters, to supply the 2400-cycle carrier for the sending light valve. Part of the power is fed to the grids of a two-tube phase detector. Mounted on the same shaft as the cylinder driving motor is a 300-cycle inductor generator which feeds the plates of the phase detector. The tubes act as a full-wave rectifier to control the output of other tubes which furnish current for the driving motors, which are separately excited, 300-cycle synchronous.

The output of the tubes furnishing power to the motors is dependent upon the phase relationship of the 300 cycles from fork and inductor generator. By suitable circuits the speed of the driving motors is thus kept at 100 r.p.m. within one part in 300,000. The fork is sealed in a container, the temperature of which is kept constant by a tube-controlled thermostat.

A constant power source is obtained from small generators suitably filtered with electrolytic condensers and storage batteries.

SKF Opens Office

SKF Industries, Inc., announce the opening of a new branch store at 407 South 4th Street, Minneapolis, Minn. A. Kishkunas is in charge. The new office carries a stock of SKF ball and roller bearings, pillow blocks, and hangers to meet the rapidly increasing demand for an overnight bearing service.

Goes To Pittsburgh

James M. Dent, until recently chief composing room machinist at the Cleveland *News*, is now holding a similar position in the composing room of the Pittsburgh *Sun-Telegraph*. John Pecook, well known in the East, and who has been employed in Cleveland for some time, has succeeded to Mr. Dent's former position at the *News*.

Control Variables

(Continued from page 18)

drive in these matrices. In a few instances we have found even a greater variation. If that condition exists in the matrix it certainly is going to result in un-uniform height-to-paper display type and display lines. Of course, the variation will carry on throughout the stereotyping process and will be reproduced in the plate put upon the press. I understand several manufacturers are giving or have already given considerable attention to matrix drive. This will eliminate that trouble-maker.

Border slides, border and rule mats on different machines are subject to wear as is also the casting equipment. A more frequent examination of the product from these machines would help locate some of the difficulties. Not only should the product be checked but also the matrix and casting equipment.

Besides the variation in the type form there is also a variation in the height of the chase. If a composing room should have several makes of chases which vary in height it doesn't seem that the best results will be obtained on all pages because the height of the chase certainly affects the moulding pressure on the form. The height may seem to work the best when moulding on a roller may or may not be the best for direct-pressure moulding.

When the form gets back to the mat roller we again run into variations. Dry mats vary in thickness to quite an extent and if I have the correct information the manufacturers will not guarantee a uniformity closer than 0.004 in. In addition to this variation between different mats, there is also a variation in thickness at different places on each individual mat. Of course, this affects mat pressure and proper moulding. More uniformity would help correct some of the troubles probably traceable to the mat.

It has been shown that moulding blankets will be as much as 0.014 in. thinner after the first rolling over the area where the type or cuts occur in the form. The same blanket is placed on the next form and there is this variation in the blanket thickness made by the first moulding to contend with. Some stereotypers overcome this somewhat by using a number of blankets in rotation so as to give each an interval of time in which to "come back" to uniform thickness*.

In addition to the liability of warp in the stereotype casting box, lack of precision in the shaver, shrinkage of the metal in casting the page and the sink that to a more or less extent is in every cast, we have the variation in thickness of the press blanket. Also there is the difference in the thickness and opacity of paper stock and the peculiar behavior of ink at times.

It would be interesting to many of us if we were capable of making a thorough check of all the different variations. Probably we would be surprised to know how far off we might be if all these either went plus or minus at the same spot on the page.

It is not my intention to discourage anyone in his effort to do a better job. We have these problems confronting us and we must straighten them out. The trouble is not all in one or two departments. First, the manufacturer must give more accuracy in equipment; the engraving department must eliminate its variations and the composing room form variations must be minimized to attain as near 0.918 in. height as possible. The stereotyper, truth to speak, is dealing with uncertainties and is doing quite a bit of guessing regarding moulding pressure and as a consequence of all these variables, the pressroom lacks accuracy.

Mechanical departments of all newspapers should be equipped with measuring devices to determine the cause for many of our printing problems. We have been assuming too many times that this or that is right because it is supposed to be right. Tests made with the proper equipment often would show it is not right. I don't know that I have discussed anything new. I have tried to point out some of the problems confronting all of us in an effort to show the importance of more accuracy. We are not going to make the progress we should until we control it.

*Mr. Link probably refers to the practice of William F. Marose, Superintendent of Stereotyping, the St. Louis *Post-Dispatch*, who said at the St. Louis A.N.P.A. Mechanical Conference, last June: "It is my practice to have one cork molder for each two forms and use these corks in rotation. For example, for a 24-page paper, the stereotyper should have not less than twelve corks. When he has molded the first form, he lays this blanket aside and uses another cork for the second form. The second cork is laid on top of the first one. Continue in this manner until twelve forms have been molded and all twelve corks have been used. Then turn the pile upside down and use the blanket which is then on top of the pile for the thirteenth form. By having plenty of blankets and using them in rotation in this manner, more uniform depth of molding will be obtained."—Ed.

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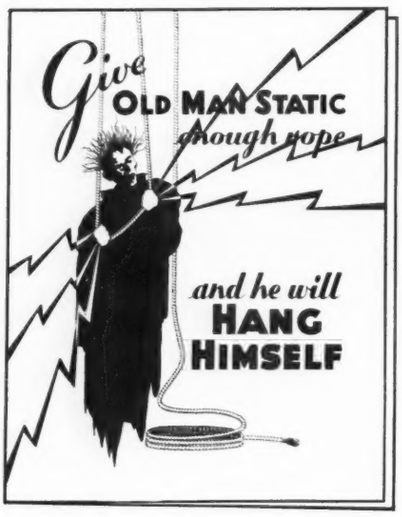
New Information On Static Electricity Points Way To Stop Printing Wastes



Old Man Static can waste a lot of time and money around your printing plant. On newspaper presses, he breaks webs where there are long leads between impressions. On Roto presses, he sets flash fires to inflammable ink fumes. And everywhere he goes he offsets sheets, ruins register at guides, and plasters sheets to delivery mechanisms.

The one scientific way to fight electricity is *with* electricity. That is why the Chapman Electric Neutralizer is the one positive device which forever frees a printing plant of static troubles.

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It is the cheapest method, too. It requires only a small investment in equipment — lasts for a lifetime — and runs at a cost seldom much more than an ordinary light bulb. It is safe, being listed among the Inspected Electrical Appliances on the National Board of Fire Underwriters. Write today for a copy of the bulletin illustrated.

Other Facts on Printing Problems. Send us your name and address to receive information we issue from time to time on our various new products. For example: our new five-color arc-type wrapper press, our new label press, our one and two-sheet rotaries, a new slitter soon to be announced.

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Patents

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JANUARY-FEBRUARY

Bookbinding:

1,988,208. BOOKBINDING MACHINE AND METHOD. Laurence C. Martin, Chicago, Ill., assignor to Martin Machinery Corporation, New York, N. Y., a corporation of New York. Application April 16, 1934, Serial No. 720,902. 4 Claims. (Cl. 11 — 1.)

1. A bookbinding machine, including means for clamping a plurality of sheets; means for roughening the edges to be bound; suction means for removing the dust left by such roughening means; and means for applying glue to the edges.

Composing Machinery:

1,988,417. MAGAZINE EXCHANGING DEVICE FOR TYPOGRAPHICAL MACHINES. Herman R. Freund, Brooklyn, N. Y., assignor to Intertype Corporation, Brooklyn, N. Y., a corporation of New York. Application February 17, 1934, Serial No. 711,758. 15 Claims. (Cl. 199 — 45.)

1. In a typographical machine having a column of matrix magazines and frames for supporting the respective magazines thereon in operative positions in the machine, means slidable on one of the supporting frames in substantially the plane thereof and operative to remove a magazine therefrom and sustain it in removed position clear of the column.

1,989,054. TYPESETTING BAR. Douglas H. Hurlbut, Adrian, Mich. Application September 10, 1934. Serial No. 743,428. 9 Claims. (Cl. 276 — 1.)

1. A typesetting bar comprising a strip of material, a rib intermediate the edges of the strip of material and extending parallel therewith, the distance between one edge of the strip and the rib being greater than the distance between the other edge of the strip and the rib a rib on the opposite side of the strip off-set in relation to the first rib and having edges extending parallel with the edges of the strip and a stop member at each end of the strip extending to the height of the rib on opposite sides of the strip and the stop members being beveled toward the outer edges of the strip.

1,989,143. ASSEMBLER MECHANISM FOR TYPESETTING MACHINES. Ellis C. Lyons, Multnomah County, Ore. Application October 3, 1931. Serial No. 566,602. 2 Claims. (Cl. 199 — 27.)

2. In an assembler mechanism for a type setting machine, sectional front and rear rails, held together by means adapted to permit the removal of the front rail portion for the replacement or repair of the matrix belt, the star wheel, and other wearing parts without detaching the rear rail portion or changing from its operating position any element of the assembler mechanism that is not desired to remove, adapted to be held in place on the typesetting machine by the same means employed to hold standard assembler rails, an assembler pulley for the matrix delivery belt supported between the assembler rails in close proximity to but having an axis independent of the axis of the star wheel, and an idler pulley intermediate the assembler pulley and the drive wheel supported by the assembler rails.

1,989,161. TYPE CASTING MACHINE. George Herbert White, Hartford, Conn., assignor to Chester A. Macomic, Chicago, Ill. Application September 28, 1933. Serial No. 691,296. 19 Claims. (Cl. 199 — 7.)

1. In combination, a plurality of longitudinally movable bars arranged side by side, a driving member and a yielding connection between it and each bar whereby the driving member propels the bars in unison along an inclined path, means in the path of each bar to arrest it at a predetermined point in its travel as the driving member goes on, means for holding all bars in place after they have been arrested, means for preventing downward movement of the bars after the holding means have engaged them.

1,989,698. SLELECTING MECHANISM. Howard L. Krum, Kenilworth, Ill., assignor to Teletype Corporation, Chicago, Ill., a corporation of Delaware. Application September 9, 1933. Serial No. 688,711. 21 Claims. (Cl. 178 — 33.)

1. In combination in a selecting mechanism responsive to code combinations of electrical impulses, a set of selectable members, a series of interponents provided with a plurality of abutments, diagonally opposite ones of which are cooperable to effect selective operations, a corresponding series of actuators for the interponents, an electromagnet, an armature lever therefor and a cyclically operable cam member cooperating with said armature lever and the actuators to set through the instrumentality of the electromagnet and the interponents the selectable members in different combinations.

Feeding and Folding:

1,987,872. FEEDING MEANS FOR PRINTING PRESSES. Arthur Rosenthal, Grand Rapids, Mich., assignor to The Rose Patch & Label Company, Grand Rapids, Mich. Application May 21, 1932. Serial No. 612,677. 12 Claims. (Cl. 101 — 292.)

1. In a machine of the class described, the combination of a printing press, a roll support at the receiving end with a roll of paper thereon, friction feed rolls for withdrawing the paper web from the roll and delivering it evenly into a loop in advance of the press, a pair of holding jaws beyond the press, a feed carriage, a pair of feed jaws carried by the carriage to reciprocate to and from the holding jaws for pulling the paper web therethrough, cam means for controlling the jaws, pairs of cut-off knives for severing sheets from the web beyond the holding jaws, a striker to act on the severed sheet next the feed jaws, cam means for actuating the same to cause it to act upon the cut-off sheet at the time it is released by the feed jaws, a live roll in advance of each cut-off shear to assist in delivering the sheets and discharging static electricity, a longitudinal endless conveyor, the upper run of which traverses longitudinally of the machine beneath the cut-off knives, an oscillating lever for actuating the feed carriage with a broad aperture therethrough to accommodate the passage of the endless conveyor, and actuating means for the lever comprising a crankshaft with adjustable wrist pin disposed beneath the conveyor to actuate the oscillating lever.

Miscellaneous:

1,988,662. BALLOON PRINTING MACHINE. Hubert A. Myers, Toledo, Ohio. Application May 18, 1932. Serial No. 612,007. 4 Claims. (Cl. 101 — 36.)

1. A machine for printing inflated balloons comprising at least three rotable printing drums, the axis of each drum being spaced equi-distant from the axis of each of the other drums to surround and support the balloon, each of the drums having an arcuate recess formed longitudinally in the surface of the drum to form an enlarged annular recess centrally between the drums for receiving the inflated balloon when the arcuate recessed portions of each drum are in central registry and means to simultaneously rotate each drum one complete revolution to compress and print the balloon.

1,989,142. DUSTLESS DROSS RECEPTACLE. A. Hoyt Levy, Brooklyn, N. Y. Application February 10, 1933. Serial No. 656,141. 5 Claims. (Cl. 220 — 35.)

1. The combination with a container of the drum type having a type opening surrounded by a horizontal inwardly projecting flange terminating in an upwardly extending rim, of a protecting hood for the container, the hood comprising an outwardly extending horizontal base flange forming the base of the hood and of an outermost diameter less than that of the rim, and of an innermost diameter substantially equal to that of the top opening, the base flange being adapted to rest on the flange of the container and within the container rim to support the hood and to form a seal between the hood and the container, a top on the hood overhanging the base flange throughout the circumference thereof except at its rearmost point, a wall joining the top and the base flange, all the elements of the wall being inclined downwardly and inwardly except at the rearmost point the wall having a charging opening at the front thereof, a horizontal flat wall at the bottom of the charging opening in parallel

spaced relation to the base flange, triangular flat side walls at the sides of the charging opening, the horizontal and triangular walls projecting inwardly of the container a distance not greater than the width of the base flange, and pivoted closure means for the charging opening adapted to yield inwardly under displacement thereof by a ladle loaded with a charge of dross from molten lead or like metal.

Offset-Litho:

1,988,970. LITHOGRAPHING PRESS. William Roy Hotchkiss, St. Paul, Minn. Application April 10, 1931. Serial No. 529,111. 20 Claims. (Cl. 101 — 144.)

1. A lithographing press including, a plate cylinder, an impression cylinder, means for adjusting the cylinders vertically, a blanket cylinder associated with the plate and impression cylinders and engageable therewith, means for locking the blanket cylinder in operative position with the plate and impression cylinders, means for releasing the blanket cylinder, and spring means for automatically moving the same simultaneously an equal distance out of engagement with the plate and impression cylinders.

1,989,250. OFFSET PRINTING INK. Charles P. Shaw, Detroit, Mich., assignor to Detroit Moulding Corporation, Detroit Mich. No Drawing. Application July 28, 1933. Serial No. 682,628. 5 Claims. (Cl. 134 — 35.)

5. An ink comprising in composition by weight substantially: 34.4 per cent pigment, 21.5 per cent linseed oil, 33.2 per cent varnish, 2.2 per cent castor oil, 3.7 per cent stearine, and 5.0 per cent turpentine.

1,990,193. TRANSFER INK. Oscar Frederic Lohmann, Tenafly, N. J., assignor to Superior Trademark Manufacturing Co., Inc., a corporation of New York. No Drawing. Application June 23, 1932. Serial No. 618,941. 3 Claims. (Cl. 134 — 28.)

1. A transfer ink adapted to be removed from a fabric by water including approximately three parts of a saponifiable wax, two parts of boiled linseed oil, three-eighths part of sodium hydroxide, and a pigment.

Plate-Making Equipment:

1,988,094. PRINTER'S MATRIX AND METHOD OF MANUFACTURE. Clarence A. Stimpson, Lakewood, and George H. Fuller and Edward R. Marbach, Cleveland, Ohio. Application August 31, 1931. Serial No. 560,276. 13 Claims. (Cl. 41 — 25.)

8. The method of forming a printer's matrix comprising placing a sheet of dampened paper on a form, perforating a second sheet of paper having a looser texture than the first sheet and placing it on top of the first sheet, simultaneously molding both sheets to the irregularities of the form, grinding the perforated sheet until portions of the first sheet are exposed and thereby provide the matrix with a comparatively smooth surface, and thereafter removing both sheets from the form as a unit.

1,990,231. METHOD OF MAKING HALF TONE SCREENS. Ralph W. Grenell, Detroit, Mich. Application September 9, 1932. Serial No. 632,404. 3 Claims. (Cl. 95 — 81.)

1. The method of producing a half tone screen consisting in forming on otherwise opaque plates, parallel transparent bands each of which undulates symmetrically with respect to its longitudinal axis, and superimposing one of the plates upon another, such that the bands of one are perpendicular to the bands of the other and the wider parts of the bands of one plate coincide with the wider parts of the bands of the other plate, whereby circular transparent spots through both plates are formed at the points of intersection of the bands.

Printing Presses:

1,988,454. INKING MECHANISM FOR PRINTING MACHINES. Frederick Lamatsch, Grantwood, N. J., assignor to Irving Trust Company, permanent trustee for R. Hoe & Co., Inc., New York, N. Y., a corporation of New York. Application September 14, 1932. Serial No. 633,070. 10 Claims. (Cl. 101 — 366.)

1. In a device the combination with an ink distributing drum and an ink rail having ink conducting means operably associated with the ink distributing drum, of an ink pump assembly detachably securable to the ink rail and operable to simultaneously close the ink conducting means while operatively connecting ink-conveying conduits secured with the assembly to the ink-distributing drum.

1,988,486. PHOTOELECTRIC WEB-REGISTERING DEVICE. Lester Ferenci, Brooklyn, N. Y., assignor to American Machine & Foundry Company, a corporation of New Jersey. Application February 25 1931. Serial No. 518,283. 11 Claims. (Cl. 271 — 2.6.)

1. In a web-registering device, the combination with a support for a reel of wrapping material having a recurrent opaque label or pattern thereon, of means for intermittently pulling off material from the reel in a continuous web, a source of light arranged to project light onto the web, a photoelectric cell arranged to be illuminated by the light projected onto the web, mechanism controlled by the cell for incapacitating the web-feeding means, and a device for rehabilitating it after an interval of time.

1,988,596. PRINTING PRESS. Montgomery O. Jones and Wesley P. Shomaker, Richmond, Va. Application March 2, 1933. Serial No. 659,310. 9 Claims. (Cl. 164 — 99.)

5. In a printing press, an impression cylinder, a perforator cooperating therewith, a movable endless row of magazines, means for withdrawing envelopes or the like from successive magazines and feeding the same between the cylinder and perforator, means supporting the perforator for movement toward and away from the cylinder, resilient means tending to move the perforator away from the cylinder, means for holding said perforator in operative relation to the cylinder, and means actuated by the row of magazines for temporarily rendering the holding means inoperative.

1,988,791. SHEET-REGISTER. Charles W. Harrold, Cleveland, Ohio, assignor to Harris-Seybold-Potter Company, Cleveland, Ohio, a corporation of Delaware. Application November 19, 1932. Serial No. 643,403. 18 Claims. (Cl. 271 — 59.)

1. A sheet-register comprising a side gage, parallel members between which the sheet is advanced, and means for moving one of the members transversely in parallelism with the sheet to draw the latter against the side gage, the member continuing its transverse movement after the sheet contacts with the side gage

1,989,121. PROCESS AND APPARATUS FOR APPLYING INK TO THE PRINTING PLATES OF HIGH SPEED COPPER PRINTING MACHINES. Friedrich von Heinrich, Budapest, Hungary, assignor of one-half to National Bank of Hungary, Budapest, Hungary, a corporation of Hungary. Application February 10, 1933. Serial No. 656,097. In Germany February 25, 1932. 10 Claims. (Cl. 101 — 350.)

1. The herein described method of preparing a printing plate which comprises running an inking surface over the plate at a changing rate of speed gradually to decrease the ink layer as it is being applied.

1,989,375. PRINTING PRESS. George R. Meyercord, Chicago, Ill., assignor to The Meyercord Co., a corporation of Illinois. Application November 12, 1932. Serial No. 642,404. 6 Claims. (Cl. 101 — 177.)

1. In a printing press, a plate roller, an endless belt having an outer soft ink-receiving surface, means to hold the plate roller in rolling contact with the surface of the belt, two parallel pressure rollers lying on opposite sides of the belt and adapted to press the surface of the belt against a strip passing between the belt and the outer pressure roller, and means yieldingly urging the pressure rollers toward each other, at least one of the pressure rollers having the peripheral portion thereof composed of soft resilient material.

1,989,531. PRINTING PRESS CONTROL. John Sinton, Philadelphia, Pa. Application February 2, 1934. Serial No. 709,492. 3 Claims. (Cl. 192 — 127.)

1. Printing press control for printing presses having a roll of paper supply rotatably mounted upon a suitable spindle, and having a core on which the paper is wound, and having relay-switch controlled electric motor for starting and stopping the press, including a follower member yieldably maintained in contact with the periphery of the paper roll with suitable force, a movable electrical contact element actuated by the follower member, and two spaced and generally stationary contact elements disposed in operative relation to movable contact element, and adapted to be contacted thereby in succession, when the follower member has moved generally in the direction of the paper roll to the desired extent, the electrical contact elements forming part of two electrical circuits capable of supplying an actuating current to the coils of the relay switch of the printing press to slow-down and to stop the printing press.

1,989,689. WEB PRINTING MACHINE. John J. Harold, New York, N. Y., assignor to R. Hoe & Co., Inc., New York, N. Y., a corporation of New York; Irving Trust Company, permanent trustee. Application April 9, 1932. Serial No. 604,139. 12 Claims. (Cl. 271 — 2.1.)

Not So Long Ago • • • •
YOU ARE UNDER ARREST
BATH TUBS WERE CONSIDERED DANGEROUS TO HEALTH AND WERE ILLEGAL • • • • •
(OLD MASSACHUSETTS LAW)
NOT SO LONG AGO, A METAL HAD TO BE SOFT TO ETCH QUICKLY IN THE BATH • • • • • •

ONCE upon a time, it was a fact that a tough zinc plate was invariably slow etching in the bath. But, that old-time theory has been exploded by the clean, quick-etching qualities of A-Z Alloy. This new, tough alloy etches just as fast as its well-known brother Zomo Electric Zinc. The reason for the splendid quality and consistancy of these metals lies in their precision method of manufacture and the use of the electric induction process, which is protected by U. S. Government patents.

Modern, skillful engravers are no longer content to risk their time, their training and their effort on "just zinc." These men insist on A-Z Alloy and Zomo Electric Zinc, ordered from any of the following: Rolled Plate Metal Co., National Steel & Copper Plate Co., Pacific Steel & Copper Plate Co., C. G. Hussey & Co., Bridgeport Engravers Supply Co., W. E. Booth Co., Ltd., Canada; Hunter Penrose, Ltd., England.

ZOMO ELECTRIC ZINC

A-Z ELECTRIC ALLOY

The Cheapest Spaceband

Is One That is ACCURATE and Which Will in Addition Give the LOWEST MAINTENANCE COST

That Is Where "STARS" Shine

They are made with meticulous accuracy. One band is just like the other.

The finest steel obtainable for the purpose — Swedish band steel — is used in their manufacture.

Proper tempering—an important factor in the manufacture of good spacebands — is always apparent in "Stars." You never have seen a "soft" or "brittle" Star spaceband.

A mark of extreme accuracy is found in the interchangeability of sleeves and wedges.

New sleeves can be fitted to wedges to an average of 90%, without the expenditure of labor. Compare this experience with your own on other makes. This means that good Star wedges can be put back into service at the cost of only 40c for a sleeve.

Costs are further cut through the exclusive patented feature—the *Eccentric Stop Pin*. No brass rivets to waste machinists' time when replacing sleeves.

Therefore Economize with "STARS" on Your Next Order!
SIX SIZES TO CHOOSE FROM

Distributors for
Ace Cord-Rubber Guaranteed Belts for Assembler, Distributor, Matrix Delivery, Intermediate Drive, etc.

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1520 Georgia Street

1. In a device guiding means for a web, the guiding means being mounted at one end in a fixed support and at another end in a movable support normally held in a fixed position when the web is feeding to a coacting printing machine, and means automatically operative to release the movable support, and thereby sever the web at a point adjacent the guiding means by misaligning the guiding means.

1,989,843. PRINTING PRESS. Martin W. Brueshaber and Hubert Lang, Chicago, Ill., assignors to Goss Printing Press Company, a corporation of Illinois. Application November 23, 1927. Serial No. 235,381. 22 Claims. (Cl. 270—9.)

1. A printing press including in combination a plurality of perfecting press units arranged in line series each unit comprising a pair of printing couples, a slitter, a pair of formers at the end of the plurality of units, means for running one of the perfecting press units at full or half speed, and means located between a half-speed press unit and the formers for cutting off sheets from a half speed printed web and associating them with a full speed printed web prior to folding.

1,989,889. PRINTING CYLINDER APPLIANCE. David J. Scott, Plainfield, N. J. Application September 22, 1932. Serial No. 634,311. 2 Claims. (Cl. 101—378.)

1. In a printing machine, a printing cylinder, members carried by the cylinder forming open slots above the surface and longitudinally of the cylinder but below the printing surface of a plate to be carried by the cylinder a segmental plate having projecting lips below its printing surface and along its straight ends, the open slots receiving the projecting lips of the plate when the latter is placed on the cylinder, and means carried by the cylinder to engage the curved ends of the plate

Printed copies of patents are furnished by the Patent Office at 10 cents each. These may be obtained by addressing the Commissioner of Patents, Washington, D. C.

"Ship Of Joy"

The Alemite "Ship of Joy" was launched over the Columbia Broadcasting System recently. This variety program is sponsored by the makers of Alemite Temprite Lubricants. The broadcasts are on the air every Tuesday and Thursday evening from 10:30 to 10:45, Eastern Standard Time.

Sale Completed

The sale of the plant of the New York *Evening Graphic* has been completed. It is understood that the Auction Sale realized approximately $50,000.00 There was considerable buying from out-of-town points. The sale was carried out under the direction of Haydock Miller, vice president, Macfadden Publications, Inc., by Samuel T. Freeman & Company, Auctioneers. Mr. Miller feels that the prices secured indicate improved conditions in the printing and publishing business.

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Uniform texture . . . stands up under matrix pressure

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Selby Mohr 883 Mission St., San Francisco, Cal.
Thompson-Hayward Chemical Co., 2228 Blake St., Denver, Colo.
Thompson-Hayward Chemical Co., 909-2nd St. So., Minneapolis, Minn.
Metzger Photo Supply Co., 1091 So. Main St., Akron, Ohio
G. C. Dom Supply Co., 125 East Pearl St., Cincinnati, Ohio

New Lamp

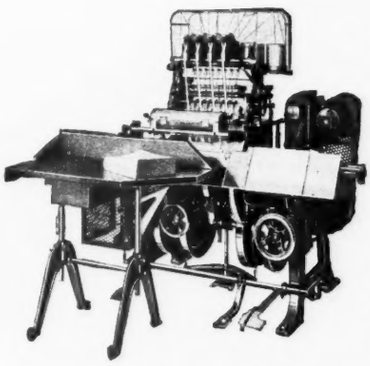
(Continued from page 16)

for routing high spots from linotype quad lines and casts that persist in printing "dirty"; routing out poster borders, dates, sale bill headings, tint blocks, and so on. Newspaper plants can use this Router for routing out small portions of stereotype casts.

A toggle switch indicates whether the motor is "on" or "off." There is also a transparent guard plate with an opening for the router tool. This protects the operator from flying chips or slivers and at the same time does not impede his vision of the work. This Router fits into the Challenge Type-High Unit.

Additional information on this new Router is available on request to the manufacturers, The Challenge Machinery Co., Grand Haven, Michigan.

Cutting-off Attachment



The E. C. Fuller Co., 28 Reade St., New York, New York, has announced development of a Semi-Automatic Cutting-Off Device which is applicable to the No. 12 Smyth Sewing Machine. The machine itself was introduced to the trade some time ago. Addition of the Semi-Automatic Cutting-Off Device to the Smyth Book Sewing Machine, as well as the recently applied semi-automatic pasting device, it is claimed, has greatly increased production and quality of work obtainable from the machine.

The Cutting-Off Device which has just been announced, sews the thread between books in such a way that the books do not have to be cut apart by had by the operator but are merely separated and removed from the machine. The cutting-off, like the pasting operation is accomplished by pressing a foot treadle.

Another feature is that instead of feeding to a moving arm, the operator feeds to a stationary saddle on which the book section is forwarded automatically to the sewing arm. This method permits operating the machine at high speeds.

Pasting is performed semi-automatically without slowing down the machine. It is a common practice to paste the first and last sections of each book to give added strength to the volume. Previously it was necessary for the operator to pass the sections to be pasted under a past wheel which resulted in a delay. In the No. 12 machine, however, it is only necessary to depress a foot treadle to paste any section desired.

Besides providing a strongly bound book, the book is sewn in such a way as to permit of its being opened flat which is a convenience to the reader.

Further information may be obtained from the E. C. Fuller Co. at the address given above.

Junior Knife Grinder

The new Rogers Junior Paper Cutter Knife Grinder which has been announced by Samuel C. Rogers & Co., is made in three sizes: No. 1 for knives up to 61 in. long, weight 600 lbs.; No. 2 for knives up to 76 in. long, weight 700 lbs., and No. 3 for knives up to 84 in. long, weight 800 lbs. In construction the grinder bed is a heavy one-piece casting with

Complete Elimination of Type Work-up

- We want to show you how easy it is to completely eliminate type work-up. That is why to everyone who sends in the coupon below we are going to send a free sample of "No-Wurk-Up."

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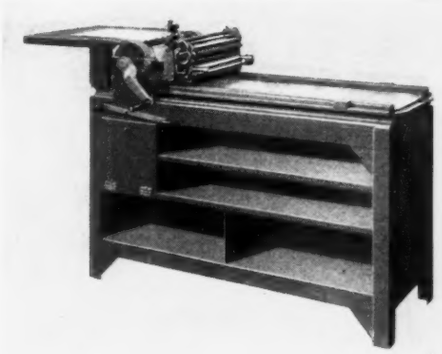

4-COLOR PROOFS with the No. 3 VANDERCOOK

The No. 3 Vandercook, though low-priced, is so accurately constructed, so thorough in ink distribution, and so positive in register that four-color process proofs are no problem.

There can be no harder test for a proof press. Accurate enough for process work and sturdy enough for run of hook forms. That is the reason why No. 3 Vandercook is the selection of leading printing organizations throughout the world.

A sample proof, just as you can produce it on your own No. 3 Vandercook, prices, and construction details will be sent at your request. Write now.

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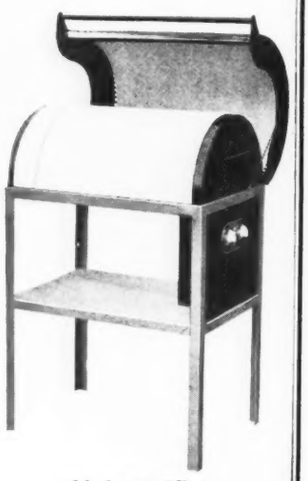
Electric
Scorchers



End Your Mat Troubles

Model 43-SP-4

Install a 43-SP-4 model Speed Electric Scorcher and get perfect mat drying and forming. This is the scorcher with the floating cover plus many other important features.

Write for further description and prices on all curved and flat models.

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BETTER
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worth
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better!

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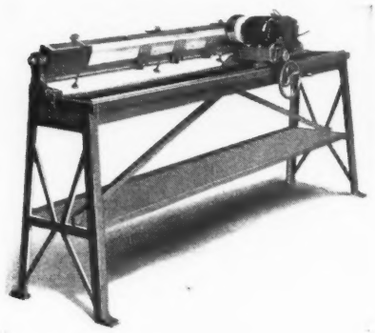
New York Office: 46 East 11th Street

two parallel planed V-bearings for carriage traverse, knife bar supports, steel-cut rack, mounted on two bolted and braced iron standards for rigidity.

Straight or concave bevel grinding may be done on this machine by suitable fixtures. The knife bar is a heavy reinforced one-piece casting with cooling liquid reservoir. It is supported by two end brackets and fitted with knife set-up gauges and clamps for locating and holding knife while grinding. The grinding wheel is 6 in. diam., is of the cup type and is covered by adjustable guard. The operating



View of Rogers Junior Paper Cutter Knife Grinder. Straight or concave bevel grinding may be done.

motor runs at 1750 r.p.m. and is 1/3 h.p. An overload protection switch is supplied.

The machine as equipped has mechanical traverse, positive cross feed and each machine is fully equipped for operation. It is claimed by the manufacturer that a knife may be sharpened in 30 minutes.

Further information may be obtained from Samuel C. Rogers & Co., or through *Printing* EQUIPMENT *Engineer.*

Trims Typefounders' Sizes

The Intertype Corporation has developed a knife block which trims slugs to either typefounders' standard thicknesses (0.013837 in. point size) or to the thicknesses commonly used for line-composing machines (0.014 in. point size). The new Intertype knife can also be set for other standard thicknesses, in variations of 0.001 in. up to plus or minus 0.007 in.

This improvement is provided by a micrometer screw attachment which can be applied to any Intertype screw-bearing knife block. With this attachment the trimming knives can be set accurately and quickly to either the typefounders' or the usual line-composing machine standard thickness at all the different settings of the knife block.

This new micrometer screw attachment solves the printer's problems of justifying mixed lines of type, slugs, and quads. It can be applied to outstanding Intertype knife blocks at moderate cost, and is very easy to apply, as it merely displaces the old knife block detent bracket. The device is adjusted by means of a micrometer screw with a large knurled head and a scale graduated in thousands and reading from zero to 0.007 in. plus or minus.

Intertype Now Cutting Beton Extra Bold

Bauer Beton Extra Bold, recently announced by Intertype, is now in process of manufacture. A line set in the 18-point size is shown below.

Student

This is a reproduction of Beton as designed by Heinrich Jost for the Bauer Type Foundry of Berlin, Germany, by whose permission it is being cut in wide tooth matrices for line-composing machines.

Rule Dies

(Continued from page 8)

trated window displays; felt, thick sheet rubber, thin soft wood and thin laminated board. New makes of steel cutting rule include 2, 3, 4 and 6-point body, made with an extra long side face bevel.

Extra hard and hard tempers of steel cutting rule are used not only for straight-line sections of "fancy" shapes of dies, but also entirely for such straight-line forms of dies as: Keystone, Latin cross, diamond, triangle, square, oblong, square with angle corners, hexagon and octagon. The extra hard and hard tempers of rule can also be bent to any angle up to 45 deg. No special heat treatment is necessary for extra hard or hard tempers of rule before they are placed in dies.

Soft steel and dead soft steel cutting rules are to be used for curved, round and other rounded shapes of cutting dies. The soft steel rule may be bent readily to almost any odd shape, but for the most intricate shapes, including small round patterns, "waves," and the like, the dead soft steel rule can be bent to the greatest advantage. After having been bent to required odd shapes, and before being placed in dies, both soft steel and dead soft steel cutting rules must be heat-treated and tempered hard. There are various methods of bending the strips of soft steel or dead soft steel to required shapes for dies. The most simple method is with the use of a flat-jaw bench vise and a pair of pliers. In large die-making plants the mechanical equipment includes a hand-lever steel rule cutter, a patented make of steel rule bending press and an assortment of hard steel stock male and female dies for use in the press. By means of these sets of stock dies and pressure from the rule bending press, strips of soft steel rule, of any body thickness, can be bent accurately to any desired shape that is predetermined by the set of steel male and female dies used. With this system, it is also an easy matter to duplicate the bent shape of rule in any number of pieces, as may be required for either single or multiple dies.

The modern methods of hardening and tempering the bent pieces of soft steel or dead soft steel cutting rule are described briefly as follows:

The essential equipment for this work is simple and inexpensive, consisting of:

1. A gas flame (a Bunsen burner, or an ordinary gas jet).

2. A deep metal pan, large enough to receive all sizes and all shapes of the bent pieces of rule to be handled in the plant.

3. A supply of tempering oil (any well-known make).

4. A pair of tongs.

5. A steel plate, about 9 in. by 12 in. and 3/32 in. thick.

6. Two insulating bricks (Celite).

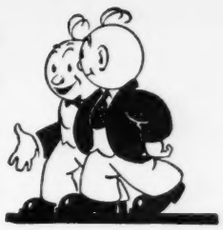
7. A quantity of fine sawdust and a stiff bristle hand brush, both to be used in cleaning the heat-treated rule.

With the aid of the pair of tongs, the die-maker holds each piece of bent soft steel rule over a Bunsen burner, or a gas jet, until the rule is heated to a cherry red color. In numerous cases, several pieces of bent rule can be heated in this manner at one time.

The heated rule is immediately immersed, or quenched, in a bath of tempering oil, this oil having been placed in the

VULCAN
CYLINDER PACKINGS
INKING ROLLERS
MOLDING BLANKETS

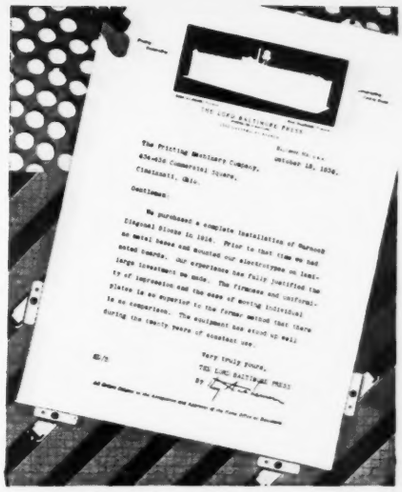
One Pressman Tells Another



"Has bent cylinder. Other blankets started to go in about six months. Vulcan Blankets now on that cylinder eight months and no sign of wear. He will see — — of — — — and tell him about Vulcan Blankets."
—Another Vulcan Field Report.

Word of mouth advertising has sold a lot of Vulcan Press Blankets and Underpackings. One user tells another that they last longer and print better. Some prefer Vulcan felt blankets, others buy Vulcan non-felt blankets, or the E. D. kind, or Vulcan draw sheets. Whatever their needs or personal preferences, users agree that they are getting better presswork at lower cost with Vulcan cylinder packings.

VULCAN PROOFING COMPANY
FIRST AVENUE AND FIFTY-EIGHTH STREET, BROOKLYN, N. Y.
Pacific Coast: Ralph Leber Co., Inc., 426 Polson Building, Seattle Wash.



"INVESTMENT JUSTIFIED"

Nothing we could say concerning Genuine PMC METAL BASES could add to this splendid message received from The Lord Baltimore Press, "The House with the Facilities," Baltimore, Md.

"We purchased a complete installation of Warnock Diagonal Blocks in 1914. Prior to that time we had no metal bases and mounted our electrotypes on laminated boards. Our experience has fully justified the large investment we made. The firmness and uniformity of impression and the ease of moving individual plates is so superior to the former method that there is no comparison. The equipment has stood up well during the twenty years of constant use."

What Genuine PMC METAL BASES are doing for others — they will surely do for you. Investigate them today. Be sure to write for catalog and prices.

"WARNOCK" 4 by 4 METAL BLOCKS — PMC PRECISION METAL CASE — "STERLING" TOGGLE BASES

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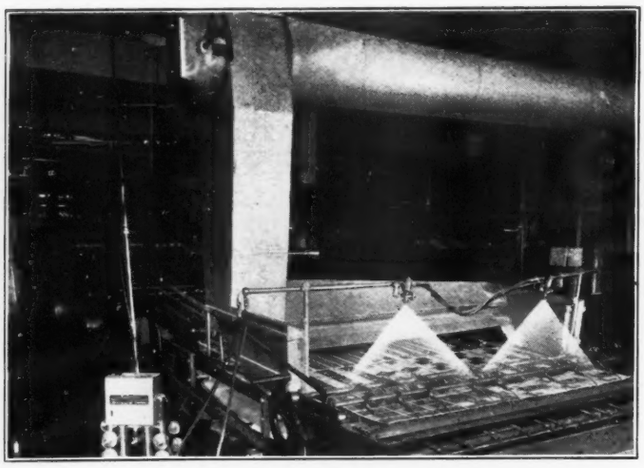
Paasche "No-Offset" Process

PROTECT your printed impressions against all possibility of smudging or ink offset... do away with all need for slip sheeting, racking, or thinning inks — by equipping your presses for the Paasche "No-Offset" Process. Cost records show yearly savings of over $3,000.00 per press equipped. Over a hundred concerns installed the process last year.



Shows Paasche "No-Offset" Equipment in Operation on Miehle Press. Substantial Savings and Higher Class of Work are Guaranteed

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1931 DIVERSEY PARKWAY CHICAGO

ONE OF TROY'S (N. Y.) leading and oldest job plants, Troy Times Art Press, for sale complete. Made money in 1934. Was bought as part of *Times* newspaper property just merged with *Troy Record*, which has no experience with or room to operate job department.

D. B. PLUM, *Publisher*, Troy *Record*, Troy, N. Y.

SLIDE RULE FOR PRINTERS

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metal pan already referred to. This process hardens the soft steel rule so that it can be handled easily.

The next step is to clean the treated rule with the stiff bristle brush and the fine sawdust. This cleaning process is to remove oil and scale from the rule, especially from its cutting edge so it will do "clean" work.

Now the steel plate is heated to a cherry red color, the die-maker holding it with the tongs over the Bunsen burner or gas jet, then placing the red-hot plate on the two insulating bricks. Working rapidly, the die-maker sets the hardened and cleaned pieces of rule, cutting edge up, on the surface of the hot steel plate, to be drawn or tempered. A number of pieces of the rule can be placed on the hot plate at the same time. The rule should remain on the plate until the rule becomes a straw color—clear up to the cutting edge. The tempered rule is then removed from the plate and allowed to cool by the action of air alone.

Steel rule cutting dies are set up in two different styles of construction. One is with the rules inserted in a mortised block of 5-ply laminated birch lumber. The other style is known as all-metal construction, the rules being set up and held in proper positions with printers' labor-saving material, such as: Iron or lead furniture, type quads and spaces, 6 and 12-point lead slugs, 2-point leads and 1-point brasses. With the systematic use of this range of labor-saving spacing material, it is a comparatively easy matter to set up and "blank out" straight-line cutting dies, and even dies of "fancy" or intricate shapes may be tightly constructed and locked up in a chase like a form of type. It is also possible to set-up all-metal cutting dies with the use of linotype blank slugs, the slugs cut to desired length to fill in the open space in the dies.

Laminated birch lumber is the highest grade of wood obtainable for the making of self-contained steel rule cutting dies, either single or multiple. Laminated board is supplied in standard block size, 24 in. by 36 in., also in various widths from 3 in. to 10 in. and 24 in. long. One spacious die can be set in a properly mortised block of the 24 in. by 36 in. size, or a number of small duplicate dies can be set in a block of this same size. Smaller sizes of blocks are used, of course, for dies of small specifications. In cases where long runs of sheet material are to be die-cut with a "gang-form" of duplicate dies, on flat-bed cylinder presses, a number of laminated board blocks, each one containing one or more dies may be used. The blocks can be placed side-by-side and locked up together as one complete form for the press. The self-contained dies may be used over and over again, for repeat runs of the same cut-out work.

To provide not only for the various heights of steel cutting rule, but also for cutting many different thicknesses of material, standard 5-ply laminated birch lumber is made and supplied in seven different heights, as follows: 1/2, 5/8, 11/16, 3/4, 13/16, 7/8 and 15/16 in. Blocks of selected heights and sizes for the dies to be made, are first marked on the top surface with a lead pencil for the pattern or shape to be mortised. The penciled lines are to indicate accurately where grooves are to be cut in and entirely through the block, to permit insertion of the rule. The mortising is done with either a hand keyhole saw or a jig-saw. The slots must be sawed wide enough to accommodate the body thickness of the rule to be inserted. However, the rules should fit into the open grooves tightly. They can be tapped in gently with the aid of a small block of hardwood and a mallet. When cutting of paper, cardboard or other thin material is to be done with either an all-metal die or a laminated wood and steel rule die, small pieces of cork are to be glued on to the blank spacing material, near both sides of all cutting rule. The purpose of the corks is to push off the cut sheets of stock easily from the die from which work is being done.

• Technical Literature

Readers of *Printing* EQUIPMENT *Engineer* who are interested, may secure any of the Books, Catalogs or Bulletins listed below by checking the literature desired in the square opposite the title. Mark carefully only that literature which you wish to receive. Fill out the coupon and send it to us. The literature will be forwarded gratis except where noted.

☐ *Folder*—Showing by means of text and illustrations how the breaking of italic kerns may be eliminated through the use of slug machine.

☐ *Broadside*—Showing 48 specimens of newspaper ribbon heads set in type cast from matrices on Giant Caster.

☐ *Folder*—Illustrating press and describing range and speed of work which may be done on Miehle Vertical.

☐ *Bulletin*—Book Sewing Machine, illustrated, with semi-automatic pasting and cutting-off features.

☐ *Knife Grinder Bulletin*—Illustrated, describing series of paper knife grinding machines for use in the printing plant.

☐ *Plan to Increase Consumption of Printing*—Twenty-page reprint of address delivered before New York Employing Printers recently by Joseph T. Mackey.

☐ *Automatic Cutting Machine*—Feeds, clamps and cuts automatically and continuously, both uniform and irregular sizes of paper.

☐ *Arrowhead Newspaper Colors*—Booklet, 8½ in. by 11 in., showing actual shades of color available.

☐ *"Ask Me Another"*—Booklet (illustrated) giving questions and answers regarding operating production details of line-composing machine.

☐ *Numbering Machine Catalog*—Illustrates and describes various kinds of numbering machines furnished by manufacturer.

☐ *Matrix Bulletin*—Showing recent type face developments for line-casting machine.

☐ *Koven Industrial Equipment*—New 52-page catalog outlining extensive service rendered by L. O. Koven & Bro., Inc., to industrial field. Illustrated with hundreds of examples of equipment designed by Koven engineers in cooperation with clients. Catalog covers plate and sheet metal construction in all commercial metals and methods of construction.

☐ *"Wings of Progress" and "About Printing Profits"*—Illustrated booklets in color comparing offset printing presses with those built twenty years ago by a manufacturer.

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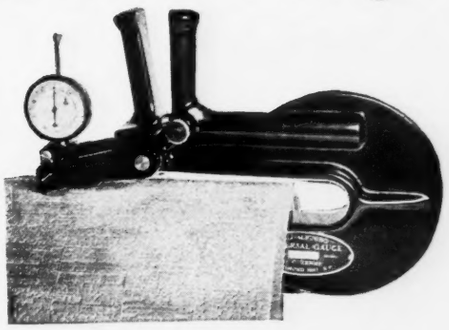
ZENKE Universal Gauge



Gauging a curved stereotype plate with the Zenke Universal Gauge

Hours of time lost on the press—and their resultant dollars of expense—can be eliminated when the Zenke Universal Gauge is at hand to tell you accurately, *beforehand,* the condition of your printing plates.

It will speedily and accurately test flat or curved plates, halftones, line etchings, matrices and blankets. It measures both curved and flat plates up to 18" wide without the necessity of cutting the plates in sections as its generous throat allows the inquiring needle to explore the complete printing surface, anywhere from the center to the edge.

The Zenke Universal Gauge provides the modern method of checking plates to insure high printing standards at minimum expense. Write for data.

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Plant _____

Individual _____

Address _____

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comprising Block Leveller, Plate Gauge, Underlay Paper Cabinet and Surface Plate—three inexpensive items which give complete control of the type-high of all wood-mounted plates.

Why do this work expensively at the press when it can be done cheaply with this equipment? Also faster and more accurately.

These are precision devices of the highest order. They are simple, absolutely reliable, easy to use, their price a mere fraction of economies they will achieve in one year.

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